

MILITARY MEDICAL MANUALS

GENERAL EDITOR:
SURGEON-GEN. SIR ALFRED KEOGH
G.C.B., M.D., F.R.C.P.

THE
PSYCHONEUROSES
OF WAR

G. ROUSSY & J. LHERMITTE

EDITED BY
W. ALDREN TURNER



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SHELL SHOCK
OR
THE PSYCHONEUROSES OF WAR

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GENERAL INTRODUCTION

THE infinite variety of injuries which any war presents to the surgeon gives to military surgery a special interest and importance. The special interest and importance, in a surgical sense, of the great European War lies not so much in the fact that examples of every form of gross lesion of organs and limbs have been seen, for if we read the older writers we find little in the moderns that is new in this respect but is to be found in the enormous mass of clinical material which has been presented to us and in the production of evidence sufficient to eliminate sources of error in determining important conclusions. For the first time also in any campaign the labours of the surgeon and the physician have had the aid of the bacteriologist, the pathologist, the physiologist, and indeed of every form of scientific assistance, in the solution of their respective problems. The clinician entered upon the great war armed with all the resources which the advances of fifty years had made available. If the surgical problems of modern war can be said not to differ sensibly from the campaigns of the past, the form in which they have been presented is certainly as different as are the methods of their solution. The achievements in the field of discovery of the chemist, the physicist and the biologist have given the military surgeon an advantage in diagnosis and treatment which was denied to his predecessors, and we are able to measure the effects of these advantages when we come to appraise the results which have been attained.

But although we may admit the general truth of these statements, it would be wrong to assume that modern scientific knowledge was, on the outbreak

of the war, immediately useful to those to whom the wounded were to be confided. Fixed principles existed in all the sciences auxiliary to the work of the surgeon, but our scientific resources were not immediately available at the outset of the great campaign ; scientific work bearing on wound problems had not been arranged in a manner adapted to the requirements—indeed, the requirements were not fully foreseen ; the workers in the various fields were isolated, or isolated themselves, pursuing new researches rather than concentrating their powerful forces upon the one great quest.

However brilliant the triumphs of surgery may be—and that they have been of surpassing splendour no one will be found to deny—experiences of the war have already produced a mass of facts sufficient to suggest the complete remodelling of our methods of education and research.

The series of manuals, which it is my pleasant duty to introduce to English readers, consists of translations of the principal volumes of the “ *Horizon* ” Collection, which has been appropriately named after the uniform of the French soldier.

The authors, who are all well-known specialists in the subjects which they represent, have given a concise but eminently readable account of the recent acquisitions to the medicine and surgery of war which had hitherto been disseminated in periodical literature.

No higher praise can be given to the Editors than to say that the clearness of exposition characteristic of the French original has not been lost in the rendering into English.

MEDICAL SERIES

The medical volumes which have been translated for this series may be divided into two main groups, the first dealing with certain epidemic diseases, including syphilis, which are most liable to attack soldiers, and the second with various aspects of the

neurology of war. The last word on *Typhoid Fever*, hitherto "the greatest scourge of armies in time of war," as it has been truly called, will be found in the monograph by MM. Vincent and Muratet, which contains a full account of recent progress in bacteriology and epidemiology as well as the clinical features of typhoid and paratyphoid fevers. The writers combat a belief in the comparatively harmless nature of paratyphoid and state that in the present war hæmorrhage and perforation have been as frequent in paratyphoid, as in typhoid fever. In their chapter on diagnosis they show that the serum test is of no value in the case of those who have undergone anti-typhoid or anti-paratyphoid vaccination, and that precise information can be gained by blood cultures only. The relative advantages of a restricted and liberal diet are discussed in the chapter on treatment, which also contains a description of serum-therapy and vaccine-therapy and the general management of the patient.

Considerable space is devoted to the important question of the carrier of infection. A special chapter is devoted to the prophylaxis of typhoid fever in the army. The work concludes with a chapter on preventive inoculation, in which its value is conclusively proved by the statistics of all countries in which it has been employed.

MM. Vincent and Muratet have also contributed to the series a work on *Dysentery, Cholera and Typhus* which will be of special interest to those whose duties take them to the Eastern Mediterranean or Mesopotamia. The carrier problem in relation to dysentery and cholera is fully discussed, and special stress is laid on the epidemiological importance of mild or abortive cases of these two diseases.

In their monograph on *The Abnormal Forms of Tetanus*, MM. Courtois-Suffit and Giroux treat of those varieties of the disease in which the spasm is confined to a limited group of muscles, *e.g.* those of the head, or one or more limbs, or of the abdomino-

thoracic muscles. The constitutional symptoms are less severe than in the generalized form of the disease, and the prognosis is more favourable.

The volume by Dr G. Thibierge on *Syphilis in the Army* is intended as a *vade mecum* for medical officers in the army.

Turning now to the works of neurological interest, we have two volumes dealing with lesions of the peripheral nerves by Mme. Atanassio Benisty, who has been for several years assistant to Professor Pierre Marie at La Salpêtrière. The first volume contains an account of the anatomy and physiology of the peripheral nerves, together with the symptomatology of their lesions. The second volume is devoted to the prognosis and treatment of nerve lesions.

The monograph of MM. Babinski and Froment on *Hysteria or Pithiatism and Nervous Disorders of a Reflex Character* next claims attention. In the first part the old conception of hysteria, especially as it was built up by Charcot, is set forth, and is followed by a description of the modern conception of hysteria due to Babinski, who has suggested the substitution of the term "Pithiatism," *i.e.* a state curable by persuasion, for the old name hysteria. The second part deals with nervous disorders of a reflex character, consisting of contractures or paralysis following traumatism, which are frequently found in the neurology of war, and a variety of minor symptoms, such as muscular atrophy, exaggeration of the tendon reflexes, vasomotor, thermal and secretory changes, etc. An important section discusses the future of such men, especially as regards their disposal by medical boards.

An instructive companion volume to the above is to be found in the monograph of MM. Roussy and Lhermitte, which embodies a description of the psychoneuroses met with in war, starting with elementary motor disorders and concluding with the most complex represented by pure psychoses.

SURGICAL SERIES

When the present war began, surgeons, under the influence of the immortal work of Lister, had for more than a quarter of a century concerned themselves almost exclusively with elaborations of technique designed to shorten the time occupied in or to improve the results obtained by the many complex operations that the genius of Lister had rendered possible. The good behaviour of the wound was taken for granted whenever it was made, as it nearly always was, through unbroken skin, and hence the study of the treatment of wounds had become largely restricted to the study of the aseptic variety. Septic wounds were rarely seen, and antiseptic surgery had been almost forgotten. Very few of those who were called upon to treat the wounded in the early autumn of 1914 were familiar with the treatment of grossly septic compound fractures and wounded joints, and none had any wide experience. To these men the conditions of the wounds came as a sinister and disheartening revelation. They were suddenly confronted with a state of affairs, as far as the physical conditions in the wounds were concerned, for which it was necessary to go back a hundred years or more to find a parallel.

Hence the early period of the war was one of earnest search after the correct principles that should be applied to the removal of the unusual difficulties with which surgeons and physicians were faced. It was necessary to discover where and why the treatment that sufficed for affections among the civil population failed when it was applied to military casualties, and then to originate adequate measures for the relief of the latter. For many reasons this was a slow and laborious process, in spite of the multitude of workers and the wealth of scientific resources at their disposal. The ruthlessness of war must necessarily hamper the work of the medical scientist in almost every direction except in that of

providing him with an abundance of material upon which to work. It limits the opportunity for deliberate critical observation and comparison that is so essential to the formation of an accurate estimation of values; it often compels work to be done under such high pressure and such unfavourable conditions that it becomes of little value for educative purposes. In all the armies, and on all the fronts, the pressure caused by the unprecedented number of casualties has necessitated rapid evacuation from the front along lines of communication, often of enormous length, and this means the transfer of cases through many hands, with its consequent division of responsibility, loss of continuity of treatment, and absence of prolonged observation by any one individual.

In addition to all this, it must be remembered that in this war the early conditions at the front were so uncertain that it was impossible to establish there the completely equipped scientific institutions for the treatment of the wounded that are now available under more assured circumstances, and that progress was thereby much hampered until definitive treatment could be undertaken at the early stage that is now possible.

But order has been steadily evolved out of chaos, and many things are now being done at the front that would have been deemed impossible not many months ago. As general principles of treatment are established it is found practicable to give effect to them to their full logical extent, and though there are still many obscure points to be elucidated and many methods in use that still call for improvements, it is now safe to say that the position of the art of military medicine and surgery stands upon a sound foundation, and that its future may be regarded with confidence and sanguine expectation.

The views of great authorities who derive their knowledge from extensive first-hand practical experience gained in the field cannot fail to serve as a

most valuable asset to the less experienced, and must do much to enable them to derive the utmost value from the experience which will, in time, be theirs. The series covers the whole field of war surgery and medicine, and its predominating note is the exhaustive, practical and up-to-date manner in which it is handled. It is marked throughout not only by a wealth of detail, but by clearness of view and logical sequence of thought. Its study will convince the reader that, great as have been the advances in all departments in the services during this war, the progress made in the medical branch may fairly challenge comparison with that in any other, and that not the least among the services rendered by our great ally, France, to the common cause is this brilliant contribution to our professional knowledge.

A glance at the list of surgical works in the series will show how completely the ground has been covered. Appropriately enough, the series opens with the volume on *The Treatment of Infected Wounds*, by A. Carrel and G. Dehelly. This is a direct product of the war which, in the opinion of many, bids fair to become epoch-making in the treatment of septic wounds. It is peculiar to the war and derived directly from it, and the work upon which it is based is as fine an example of correlated work on the part of the chemist, the bacteriologist and the clinician as could well be wished for. This volume will show many for the first time what a precise and scientific method the "Carrel treatment" really is.

The two volumes by Professor Leriche on *Fractures* contain the practical application of the views of the great Lyons school of surgeons with regard to the treatment of injuries of bones and joints. Supported as they are by an appeal to an abundant clinical experience, they cannot fail to interest English surgeons, and to prove of the greatest value. It is only necessary to say the *Wounds of the Abdomen* are dealt with by Dr Abadie, *Wounds of the Vessels* by Professor Sencert, *Wounds of the Skull*

and Brain by MM. Chatelin and De Martel, and *Localisation and Extraction of Projectiles* by Professor Ombrédanne and R. Ledoux-Lebard, to prove that the subjects have been allotted to very able and experienced exponents.

ALFRED KEOGH

AUTHORS' PREFACE

THE present war has brought to light a series of psycho - neuropathic manifestations of which physicians have hitherto had little experience.

After the experiences of recent wars, the occurrence of nervous or mental complaints was only to be expected as a natural corollary of "nervous tension," strain, fatigue, and especially of the multiple emotions to which the combatants are exposed. It had further been predicted that in future wars the great variety and intensity of modern explosives would produce severe psychopathic disorders.

As a matter of fact, these forecasts have not proved so alarming as had been predicted. On the battlefield and in the trenches our soldiers have exhibited a fine nervous stability, proof of which is still in daily evidence. They have shown a remarkable and striking degree of steadfastness which shows no sign of flagging, notwithstanding the long duration of the campaign. Also, according to our regimental medical officers, psychoneurotic manifestations in the actual firing-line are not often seen; indeed, they are quite rare.

On the other hand, behind the lines—in the field-ambulances, the field-hospitals, and still more in the base-hospitals—these manifestations find a more favourable soil for their development. They exhibit the most varied forms, but their great variety does not disprove their close relationship. And even if it can be said that the war has produced no novel type of psychoneurosis, it is none the less true that

their multiplicity has been a matter of no little surprise to neurologists.

The reader must not expect to find in this volume a general treatise on the psychoneuroses, nor a complete account of previous works on the subject. We have a different object in view in writing this volume. Being one of a series—*A Compendium of War Medicine and Surgery*—we intend it to give a faithful picture of the various facts that have been collected both in the casualty clearing-stations and in the special hospitals. In treating one of the important questions in the neurology of the war, this book is especially intended for those commencing work in the “Military Neurological Centres.”

In approaching such a large subject we have only briefly touched on well-known and classical facts in order to devote ourselves mainly to those psychoneuropathic manifestations which the war has especially brought to light, partly by multiplying their number and partly by modifying their symptoms. We believe, however, that we have not exceeded our scope by expressing definite views on various points still under discussion; further, while maintaining the didactic character of the book, we have not always been able to avoid treading on controversial ground.

The war, indeed, while furnishing a vast field of observation for neurologists—especially as regards the psychoneuroses—has also produced a unique collection of literature, such as has never before been seen. As a result, we have seen how—in spite of the reactionary views on hysteria put forward by Babinski ten years ago—the majority of medical men, especially those who have not specialized in the subject, have remained faithful to the old teaching regarding hysteria, namely, that it is capable of producing any manifestation, of simulating anything, of bringing forth disturbances of function both in vital organs and in organs under voluntary control. Such a doctrine must carry with it serious practical results, which are particularly

grave in times like the present. Therefore we consider it opportune once again to combat certain obsolete and antiquated theories.

Ever since the commencement of the campaign, working independently in different spheres, we have endeavoured to observe facts in their reality and tried, as far as possible, to rid ourselves of preconceived ideas. Thus we have gradually been led to realize the falsity of the classical doctrine of hysteria and the general soundness of Babinski's work, without entire agreement on certain points of detail, to which we shall later refer.

Lastly, the reader, aware of the motive underlying the publication of this small volume and of the conditions under which it has been written, will excuse any omissions in the bibliography.

GENERAL SCHEME.—After having defined the psychoneuroses and shown how they differ from malingering, we shall successively review the more simple disorders, commencing with slight motor disturbances, and finally deal with the more complex psycho-neuropathic manifestations, such as the purely psychical derangements.

Having considered the slighter motor disturbances, we shall describe those neuroses which affect such functions as the gait, then the disorders of the senses and of sensation; finally, we shall consider the various visceral disturbances, which are more difficult to interpret.

The next two chapters have been devoted respectively to the various nervous crises and psychical disorders.

The psycho-neuropathic symptoms of "shell-shock" being altogether a novel matter, we have collected into a separate chapter (Chapter X.) an account of the various symptoms produced by concussion of the nervous system, although they are separately described under their various headings.

Finally, we shall discuss the etiology and general

pathogenesis of the psycho-neuropathic symptoms of war, endeavouring to show the origin and development of these varied conditions and the factors determining their prognosis.

The last chapter deals with the indications for treatment.

PREFATORY NOTE

BY THE EDITOR

THE authors have presented a book which gives a detailed account of the clinical features of the psychoneuroses of war. They have succeeded in describing in a graphic way and explaining in logical fashion the causes, method of onset, symptoms, course and treatment of those functional disorders which have become familiar to us under the name of "Shell Shock." This term, much used by ourselves and also much abused, has no equivalent in the French language. In reality the symptoms of "shell shock" are the consequences of emotion (psychical shock) or of concussion of the nervous system (concussion shock) arising from the accidents of warfare.

The influence of *emotion* in the causation of the psychoneuroses is fundamental. It plays its part both in neuropathic subjects and in those whose nervous systems have been made susceptible by the stress and strain of war. The initial emotional shock is succeeded by a latent period or phase of "incubation," the immediate onset of the symptoms being temporarily inhibited and rarely observed in the fighting line. It is usually after the soldier finds himself in a place of safety, such as a first-aid post or a casualty clearing-station, that the emotional reaction reveals itself as a paralysis, contracture, tremor, mutism or other hysterical symptom. If not treated suitably at this period the emotional reaction becomes fixed and passes into the subconscious, becoming more deeply rooted the older

its inception. Hence it is found that the instinct of self-preservation, which plays its part originally in inhibiting the onset of the symptoms, later on acts as a cause of their fixation and persistence. In addition to being able to produce a neurosis and to fix a neuropathic disorder on some part of the body, emotion is capable of reviving a previous emotion, a fact which is well known and illustrated by the "nervous crises" or attacks of major hysteria which are not uncommon in soldiers suffering from "shell shock."

The influence of *concussion* in the causation of the psychoneuroses is more difficult to determine. In those forms of concussion with definite evidence of contusion or bruising of the nervous system, in which consciousness has been temporarily abolished, psychoneurotic symptoms are less common than those of an organic nature. In cases of concussion without any obvious external sign of injury, or of concussion from shell explosion at a distance, the development of hysterical symptoms is attributable usually to emotion, and in some cases there is an interval of retrospective emotion and suggestion, the shock having been relative and not entailing loss of consciousness. Concussion pure and simple unaccompanied by any emotional element rarely gives rise to neuropathic symptoms.

But there is also a type of case in which the original symptoms are without doubt due to direct concussion of the nervous system, but in which, later on, symptoms of a definitely hysterical character develop. To the symptoms of concussion, therefore, functional symptoms are superadded, and it is difficult to determine in these cases where the outcome of emotion merges into that of concussion.

In addition to concussion, local trauma, when applied to any part of the body, may produce a neuropathic disturbance in a predisposed person. Local trauma acts through emotion as well as through auto-suggestion, in that it creates the idea of a

disorder greater than could be caused by organic disease, and it acts also as an agent in fixing the symptom.

Differing in method from emotion and concussion in the production of neuropathic symptoms, but similar in its effects, is pain as a determinant of hysterical symptoms, and especially of contractures and abnormal attitudes. It is not exceptional to find paralyses and contractures preceded by more or less vague pains in the joints of limbs which have been bruised. These pains may be the basis of many cases of hysterical paralyses, which are apparently of spontaneous origin, and which persist long after the pain has disappeared. One of the most striking of the abnormal attitudes probably produced in this way is the novel condition known as "bent back," which superficially resembles the posture assumed in cases of organic spondylitis.

The recognition of these phases in the development of psychoneurotic symptoms—an early phase in which the emotional reaction is "fluid" and a later phase in which it is fixed and deeply rooted—offers a guide to treatment. The French Military Medical Service has long recognised the value and importance of treating these cases at the earliest possible moment after the shock, and has for this purpose established Neurological Centres in the zones of the armies. The authors state that they return ninety-eight per cent. of their hysterical cases to duty, when treated behind the lines, and that only two or three per cent. are failures when treated in the hospitals in the Interior.

There would appear to be general agreement upon the value of the segregation of soldiers suffering from the psychoneuroses, and two to three years' experience has justified this principle. But it is essential that these patients, when segregated, should be under the care and treatment of medical officers skilled in the special methods of treatment and that an "atmosphere of cure" should pervade the special

hospital. The great value of segregation is that all cases of war psychoneuroses may be studied individually and all factors determining causation, exaggeration or prolongation of symptoms may be sought out and eliminated. No factor is more influential in maintaining the neuroses than ill-considered or injudicious methods of treatment, and we know of many cases in which symptoms have become fixed by these well-intentioned but unsuitable efforts. The chief criticism raised against segregation is that the patients imitate each other, that the tremors, stuttering speech and abnormal gait presented by some patients are means of "infecting" patients, who may be suffering from other neuropathic disabilities. Such is not the general experience, and the authors confirm what has been observed in this country, that evidence of direct "contagion" of psychoneurotic symptoms from one group of patients to another is quite exceptional.

It is hardly necessary to refer here to the details of treatment of the psychoneuroses. The methods employed by the authors are described in the text, and consist mainly in a modified form of psychotherapy in which faradization plays an important part.

In our own hospitals at home other forms of psychotherapy are largely employed: rest and isolation when necessary, persuasion, suggestion, exercise and re-education of the functions of paralysed organs, analysis of dreams, obsessions and morbid fears and anxieties. It is desirable also that treatment should be carried out in the country rather than in the town, that a certain amount of employment, preferably of an outdoor character, should be conjoined with the special psychotherapy, and that the patient's mind should be set at rest upon the important question of his return to the firing line.

It is not surprising that the relation of malingering to the psychoneuroses of war should have received full consideration at the hands of the authors. The

experience of the French physicians coincides with our own in this country, that true simulation or the creation of a pathological picture for the purpose of deceit, is rare in our military neurological hospitals. Much more common and difficult to determine is the extent of unconscious and unintentional exaggeration or prolongation of symptoms, which have originated as genuine manifestations of one or other variety of psychoneurosis. So many influences combine to favour exaggeration that there is no question in the whole range of psychoneurotic symptoms upon which medical officers have greater difficulty in giving a decision.

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INTRODUCTION

GENERAL IDEA OF THE WAR PSYCHONEUROSES

IN employing the term "psychoneurosis," we indicate that all the symptoms which we describe, possess, to a certain degree, a psychical origin. This origin is sometimes difficult to elucidate, masked as it is by the more blatant phenomena of the complaint; but it is important to bear it in mind, as it is only by working on the lines of the psychopathic element in the neuroses that we are able to cure the symptoms by which they reveal themselves.

In the course of our work we shall sometimes use such terms as "functional," "pithiatic," "hysterical" disorders. Though these terms indicate clinical forms somewhat differing from each other, they are all bound up in the same pathological group—that of the psychoneuroses. The psycho-neuropathic states are, in fact, complex conditions in which many psychical elements are intermingled.

One of the fundamental elements is certainly that caused by "emotional shock." But emotion, however intense it may be, by no means suffices by itself to bring about the psycho-neuropathic symptoms.

In a normal individual, emotional phenomena, however violent they may be, are restrained by force of will, by personal self-control; then, when the emotional cause has ceased to act, they fall into oblivion, effaced by the perceptions, the preoccupations and the associations of daily life. It is quite another matter with the neuropath, especially with the neuropathic soldier. The conditions of war intensify an

already emotional temperament by bringing new emotions in their train. The almost continual recrudescence of these emotions, added to bodily fatigue, begets, in one already predisposed, a highly emotional condition and peculiar emotional receptivity; thus by a phenomenon of mental anaphylaxis the individual becomes incapable of bearing an emotional shock.

It does not follow, however, that the initial emotional condition is followed immediately by psycho-neuropathic symptoms. As we shall see, between the causal emotion and the psycho-neuropathic symptoms a latent period of variable length is interposed—a well-recognized phase of incubation or contemplation—which makes less clear the causal connection between the emotion and the objective phenomenon of the neurosis. The majority of regimental medical officers will agree with our statement that neuropathic symptoms are infrequently seen in the firing-line. The soldier, profoundly impressed by the conditions and often experiencing the most distressing visceral disturbances from the emotion, reacts, not always voluntarily, but driven by that instinct deeply rooted in us all—that of self-preservation. Shaken by a bursting shell, for example, or hit by bullet-fire, the neuropathic subject has nevertheless the energy to escape from danger. Far from being glued to the spot, he shelters in a dug-out, a shell-hole or a trench. It is when removed to calmer surroundings, far away from danger, that the psycho-neuropathic condition comes to light, whether as a contracture, a paralysis, a tremor, or a convulsive fit. This is easily understood if we bear in mind that from the moment when all danger is passed, the instinct of self-preservation loses all its inhibiting influence over the emotional phenomena. The latter outlast the initial emotion, or more often, perhaps, the emotion is brought back to the mind of the patient, bringing with it the various recognised motor and visceral disturbances.

Thus we reach the third act of the series: the

fixation and realization of the emotional reaction. In one case this will appear as a tremor, in another as a paralysis, in others as a contracture, mutism, or delirium. Fixation of the emotional reaction is a true characteristic of the psycho-neuropathic condition. The restraining bridle-rein of self-preservation being no longer present, this fixation is in active operation whether it is concerned with the dissociation of personality, with a weakening of the mental syndrome, with the imaginative power of the individual, or with the tendency of any idea of a neuropathic subject, which has an emotional aspect, to become crystallized. Thus, becoming fixed in the mind, the emotional attitude tends to escape from conscious control and to reach the depths of the unconscious. This generally occurs rapidly, and the objective symptoms of emotional origin are the more deeply rooted the older their inception. It is precisely this progressive delay in the realms of the subconscious and then of the unconscious mind, that accounts for the fact that psycho-neuropathic symptoms are the more tenacious the older their origin. It is only by a voluntary effort that the patient can recall the emotional origin of the neuropathic condition ; but he is very often quite incapable of making this effort, and this for many reasons. The instinct of self-preservation which, at the moment of the shock, restrains the abundant emotional reactions and checks the development of psycho-neuropathic manifestations, changes its rôle, so to speak, and becomes an effective cause of fixation and of the persistence of the emotional attitude. It is not a question of malingering—a conscious and deliberate act—but of an automatic, instinctive, egoistic phenomenon, advantageous to the individual but troublesome to the community.

Do we mean by this that no other element—particularly Suggestion—is at work in the production of emotional psycho-neuropathic symptoms ? It would be taking too narrow a view to adopt this

hypothesis, just as it would be extravagant to regard suggestion as the only basis of psycho-neuropathic symptoms. It is quite clear, indeed, that when a life-like and realistic image of a bygone emotion develops, a state of auto-suggestion may be produced, especially if the recrudescence of the emotional state is engendered by a wound or injury of the body. But often enough no psychological analysis will recall the morbid auto-suggestion, *i.e.* a mental picture of which the functional disorders are only the realisation.

MALINGERING AND PSYCHONEUROSES

Such varied meanings have been assigned to the term *malingering*, that we must try to determine the exact signification that can logically and scientifically be applied to it. This term is still often employed in the army and in civil life to describe vaguely all morbid phenomena, especially when nervous, not arising from an organic lesion: thus it comes about that neuroses and malingering are confused. How often one hears it said of a patient with a tremor, of a deaf-mute, or of a case of paraplegia: "he is only a malingerer." Such a conception not only implies a regrettable nosographic error, but from a practical point of view entails the most serious consequences.

It ought to be recognised that it is chiefly physicians who have not made a special study of neurology, and who are untrained in the many difficulties in diagnosing the psychoneuroses, who confuse these conditions. Here, just as in cases under the Workmen's Compensation Act, it is the least experienced observers who diagnose the most cases as malingerers.

And even neurologists themselves are far from agreeing as to the exact meaning of the word "malingering." Some authorities, indeed, speak of *conscious and unconscious, voluntary and involuntary malingering*; and by the analogy of these terms sanction the confusion of that which is not and that which is pathological.

Malingering implies a voluntary, conscious act, willed and reasoned, an act which is intended to mislead and deceive the judgment of those in contact with the individual.

Malingering is not therefore pathological but a form of deception; commonly practised by many individuals, it only becomes of interest to the physician when it concerns patients.

In all ages simulation of disease has been recognized and studied; and there are numerous works dealing with the means of exposing imposition and fraud, especially in France since the Workmen's Compensation Act of 1898.

The war has inevitably renewed interest in this subject, leading to the same variance of opinion and discussion as were in evidence when the Workmen's Compensation Act first came into operation and bringing to light many false diagnoses of malingering.

The Neurological Society of Paris, at its session on the 21st of October 1915, debated the following subject: "Methods of clinical examination and procedure in dealing with cases of suspected Exaggeration or Simulation of certain symptoms in the Nervously Wounded." The meeting adopted the definition proposed by Gilbert Ballet, viz. :—

Malingering.—Subjective or objective symptoms, assumed by the individual, with the deliberate intention of misleading the observer.

The two following must be added :—

(a) The voluntary and intentional Exaggeration of a real disorder, and

(b) The voluntary and intentional Prolongation of a real disorder.

We therefore have to distinguish between the various forms of malingering, according to whether the complaint is assumed, invented, exaggerated, or prolonged.

Malingering by Assumption (jaundice produced by picric acid, dermatitis by vesicants, conjunctivitis by tobacco, etc.) need not detain us,

being outside our scope. We shall therefore consider only malingering by the invention, exaggeration, or prolongation of symptoms.

Malingering by Invention is the complete creation of an objective disorder, an abnormal attitude, a motor or trophic nervous complaint, or the alleged existence of a subjective phenomenon such as pain, complaints which are calculated to excite attention, commiseration, and pity. Though occasionally the malingerer has seemed—especially in the early days of the war—to draw solely upon his imagination for the various manifestations of his “disease,” he now more often derives his information from the field-ambulance or the hospital. Thus he endeavours to copy some functional disorder, neuropathic symptom, or organic paralysis, by this means hoping to produce a colourable and realistic imitation. This is the form most commonly observed in the army.

Cases of Malingering by Invention are, however, quite rare in this war: neurologists agree that they are of exceptional occurrence.

Malingering by Exaggeration consists of an amplification of the symptoms caused by some real objective lesion, either neuropathic or organic. Lastly, **Malingering by Prolongation**—the most common form—is the wilful persistence in a pathological attitude or a symptom associated with some definite lesion, after the latter is healed or obviously improved.

Sicard and Cantaloube apply the term “Malingering by Fixation” to the last two forms.

Having disposed of these preliminaries and shown the correct use of the word “malingering,” let us see if it is possible to distinguish such assumed symptoms from those of the psychoneuroses which most closely resemble them, *i.e.* hysterical or pithiatic phenomena. It is often a matter of extreme difficulty to distinguish between malingering and hysteria; and hysteria must be clearly differentiated from malingering.

ing, in accordance with the above definitions. It is all the more difficult in that hysteria—described as “la grande simulatrice” by Charcot—also reproduces more or less closely the clinical picture of organic lesions of the nervous system. To distinguish between hysteria and malingering is to estimate the amount of intention underlying a pathological appearance. Thus we may say that true malingering is intentional simulation and that hysteria is unconscious simulation (Joanny, Roux). As in the majority of cases it is impossible to sound the depths of consciousness, it will be necessary to utilize mental analysis unless the matter is cleared up by a confession or by obvious mistakes on the part of the patient.

Although in some functional cases it is difficult or even impossible to determine the part played by the will, for example, in the reproduction of some pathological posture, yet we believe that a minute study of the clinical signs (in the absence of any objective signs), combined with a psychological analysis will supply the necessary information for a definite diagnosis in most cases. This is not always possible at the start, but often necessitates prolonged observation.

Thus we believe that in most cases it is possible to detect the “inventive” malingerer.

It is difficult for the malingerer to display a complete imitation of a series of neuropathic manifestations, such as contractures, tremors, spasms, and certain affections of the gait.

The malingerer is never able to reproduce faithfully a real psycho-neuropathic contracture. It is certainly easy to mimic the vicious posture of a contracture for a certain length of time, but unless the subject has specially practised its adoption (when the malingering becomes a real pathological condition—to which Dieulafoy gives the name *pathomimie*), it is impossible to maintain the contracture of a limb for many months, or over a year, without intermission.

The same holds for tonic or clonic spasm and for tremor. We have seen pseudo-contractures and pseudo-tremors simulated by soldiers, but it has been an easy matter to recognize their real nature. In either case careful watching for a few hours suffices to establish the diagnosis. The tremor becomes less rapid, less regular; the subject often believes that he is no longer carefully watched, when the movements will cease for an instant. If it is a case of voluntary muscular contraction and the limb be placed in an uncomfortable position, the individual soon exhibits evident signs of fatigue, the muscle relaxes, and the contraction disappears. This is exactly the opposite of what happens in a psycho-neuropathic contracture or tremor.

Besides, there are few persons who simulate any one of the affections of which we have just been speaking, and for a good reason. The malingerer more often simulates a flaccid paralysis or assumes a disorder of some function, such as the gait. But these cases, although more difficult to analyse, are not impossible to diagnose.

When the malingerer attempts to imitate a posture or a gait, he always exaggerates, he distorts to excess the functional disorder and overdoes the paralysis, although it is not accompanied by muscular wasting. It is not an infrequent occurrence to find a malingerer adding symptoms more or less cleverly copied from an organic complaint to the picture of a flaccid paralysis. Thus in one case we have observed a fairly good imitation of an organic hemiplegia with combined flexion of the thigh and trunk and Babinski's sign (extension of the great toe). But it was an easy matter to inveigle the patient into contradicting himself unconsciously.

In the case of the psychoses, malingering seems sometimes to be especially difficult to diagnose. We shall later take an opportunity of returning to and discussing this question. But here, again, malingering is characterized by the extreme incoher-

ence of the phenomena that the individual tries to pass off as pathological, by the absence of a definite syndrome and by subjective reactions which correspond in no way with those of the mental condition he attempts to copy.

Malingering by exaggeration and persistence are usually much more difficult, and sometimes even impossible, to distinguish. Here there exists (or has existed) a definite organic condition, which the patient knows and has studied and which he exploits or prolongs (Sicard), sometimes adding to his symptoms, sometimes perpetuating a few only. It is certainly impossible to exaggerate a paralysis due to a peripheral nerve-lesion or to perpetuate it after it has disappeared, without a clinical examination immediately showing up the deception. But as regards subjective conditions, such as pain, causes of lameness, lumbago, etc., and partial paralyses the result of concussion of the nervous system, diagnosis is a delicate matter; and the distinction between an "organo-psycho-neuropathic" association and the exaggeration of true organic symptoms or their sequelæ is singularly hard to draw. Nevertheless, this can often be done by thorough and repeated examinations.

We shall not discuss here in detail the clinical analysis necessary to detect exaggeration and prolongation of symptoms and we have only intended to indicate on broad lines the characteristics of malingering. Our main object has been to show that malingering and the psychoneuroses are essentially different and that, by clinical methods, it is generally possible to distinguish the two conditions.

THE PSYCHONEUROSES OF WAR

CHAPTER I

ELEMENTARY PSYCHOMOTOR COMPLAINTS

PSYCHONEUROTIC motor symptoms, paralyses or contractures, have been in evidence amongst soldiers since the very commencement of the war. Several cases a day have been found both in hospitals near the battle-front and in the general hospitals. They are undeniably the most common and therefore the most important of the neuroses of war.

These motor disorders take the form of a flaccid paralysis or paralysis with contracture, when they more or less closely resemble the true organic paralyses, either flaccid or spasmodic ; thus we find hemiplegias, paraplegias, and monoplegias. Sometimes, as in certain contractures of the hands, feet, or trunk, they defy any central or peripheral classification and may assume the most infinite variations in type.

§ 1. PARALYSES AND CONTRACTURES OF ONE OR MORE THAN ONE LIMB

HEMIPLEGIA, MONOPLEGIA, PARAPLEGIA

In spite of their diversity, the psycho-neuropathic motor complaints described under the above heading have certain common characteristics : they appear under the same etiological conditions, they exhibit specific clinical and "pathognomonic" signs which permit of their differentiation from organic diseases and, lastly, they react to therapeutic measures in a

similar manner. Therefore we can study their etiology and differential diagnosis together, only their clinical aspects needing separate treatment, always bearing in mind the fact that the various types often overlap each other.

Etiology.—The conditions underlying the development of a hemiplegia, a monoplegia of an arm or leg, or of a paraplegia, are practically identical.

Sometimes they originate from some fairly severe trauma not entailing any grave wound, a cerebro-spinal concussion from the explosion of a projectile or a mine close at hand but without any obvious bodily wound, shock from the collapse of a trench, etc. In other cases the onset of the paralysis remains obscure and functional phenomena develop without any mental or physical shock. It is not exceptional to find that these paralyses or contractures are preceded by more or less vague pains in the joints of the limbs which have been contused. They are often intractable and are the basis of many cases of paralysis which are apparently of spontaneous development. Lastly, these motor affections may develop in hospital during the course of an infectious disease contracted in the trenches.

The situation of the trauma has no bearing on the site of development of the paralysis. A wound of the shoulder or of the hand may be equally effective in producing absolute impotence of the upper extremity. A scar, proving the existence of a real initial trauma, may even be found at a great distance from the affected limb. Further, the severity of the wound bears no relation whatever to that of the paralysis; on the contrary, it appears that in most cases it is the most insignificant wound that brings about the most serious functional paralysis.

The *Onset* of these motor affections is much the same, whatever form they may take. Sometimes they appear immediately after the trauma, as soon as the patient recovers from the emotional shock that he has just experienced (*e.g.* having been buried

in earth or débris, or having sustained some local trauma); or, if he has lost consciousness, at the moment he regains it in the field-ambulance or in any of the Red Cross departments. Often the hemiplegia, monoplegia, or paraplegia may not become manifest until several days later, and during this period—the *phase de méditation* of Charcot—the soldier only exhibits vague symptoms in keeping with a physical and psychical disorder occasioned by the trauma: more or less diffuse aches and pains, symptoms of vertigo following a labyrinthine concussion (Lhermitte), and general asthenia, the result of repeated fatigue and of shock, due to cerebro-spinal concussion or emotion.

Clinical Aspect.—We shall study successively the principal clinical types of paralysis.

HYSTERICAL HEMIPLEGIA.—Although a good deal rarer than paraplegia or the monoplegias of the same nature, the so-called “hysterical” hemiplegia, or better hysterical hemiparesis, is far from being a rarity. However, it can be said that the war has not added a large number of cases. Indeed, if only those directly referable to physical or psychical trauma in the course of the war are considered, their number is strictly limited.

Hysterical hemiplegia is rare in consequence of a wound of a limb; this is conceivable when one considers that the local trauma limits its action to fixing upon a restricted region of the body the functional disturbance (bound up with the emotion and the representation of the emotion). Cases are still rarer in which the hemiparesis appears as a result of a wound of the head, which, though slight, is upon that region of the skull which lies over the motor centres for the limbs which exhibit the paresis or paralysis. We shall return to such cases later.

The features of so-called hysterical hemiplegia are too well known to need description, all the details observed during the war being found in the classical type.

PLATE I.

Fig. 1. HYSTERICAL HEMIPLEGIA OF THE LEFT SIDE. T. M., billet-officer, — cuirassiers. Villejuif Hospital, 25th January 1915.

Onset of loss of power in the left side in November 1914, following on fatigue and emotion. Complete paralysis of the left arm and paresis of the left leg. Anæsthesia (of the hysterical type) of the left arm and of the left leg as far as the middle of the thigh. Dragging gait. Plantar reflexes flexor on both sides.

Recovered in six months, able to rejoin his regiment and ride a horse.

In his past history there was a record of a similar affection lasting a month at the age of 16½.

Fig. 2. MONOPLEGIA OF THE RIGHT LEG : PSEUDO-COXALGIA TYPE. M. A., — infantry regiment. Villejuif Hospital, 9th February 1915.

Wounded on the 9th September 1914. Wound of the right thigh. All active movements were made equally well on the right and left sides. Power of the right limb slightly diminished, especially that of extending the knee. Reflexes normal. Slight lameness: toes turned outwards. The sole of the foot lay quite flat on the ground. On admission, the patient exhibited absolute and complete anæsthesia of the whole limb, extending up to the umbilicus; this anæsthesia disappeared on the day of admission after treatment with a powerful faradic current applied to the skin.

Claudication completely cured in a month by re-education and electrical treatment.

Figs. 3 and 4. PSYCHO-NEUROPATHIC ASTASIA-ABASIA, FOLLOWING CONCUSSION DUE TO THE BURSTING OF A SHELL. B., aged 25.

The patient could only walk with his eyes fixed on the ground. Walking interrupted by movements of latero-pulsion. Tight-rope walker's gait.

Fig. 5. SPASMODIC NEUROPATHIC PARAPLEGIA, FOLLOWING CONCUSSION DUE TO A SHELL. A., aged 33. Neurological Centre of District VIII.

Normal cutaneous and tendon reflexes. The patient takes long strides and holds the body absolutely rigid.

PLATE I.



FIG. 1.—Hysterical hemiplegia of the left side.



FIG. 2.—Hysterical monoplegia of the right leg.



FIGS. 3 and 4.—Psycho-neuropathic Astasia-abasia.



FIG. 5.—Neuropathic spasmodic paraplegia.

It is known that hysterical hemiplegia occasionally takes the form of an absolute motor paralysis of both the upper and lower limb. Walking is possible with the aid of a stick or crutches. The dragging gait is quite characteristic; the point of the foot drags along the ground, the trunk is bent, and at each step its weight is thrown on to the limb affected by paresis.

With regard to the upper extremity, it is very often more affected than the lower; hanging beside the body, it is incapable of any voluntary movement. Neither the face nor the tongue share in the paralysis, and the apparent facial paralysis sometimes met with is really due to a tonic glosso-labial spasm of the opposite side. This spasm shows itself not only by a permanent contracture of the muscles of the face and tongue on the side opposite to the paralysis, but also by clonic twitching of the contracted muscles.

The cause of this distortion of the features is further proved by the fact that in involuntary and automatic imitative movements, the two sides of the face contract with equal energy and all asymmetry disappears.

The cutaneous and tendon reflexes are normal and muscular tone is equal on the two sides. This rule, however, has certain exceptions which it would be dangerous to ignore. Although the neurosis in itself may be incapable of modifying the normal cutaneous and tendon reflexes, this is not to say that the latter are incapable of modification in a purely neuropathic hemiplegia of old standing. Following on prolonged functional inactivity, the muscles of the paralysed limb undergo atrophy, and this itself necessitates an inequality of the tendon and bone reflexes; the latter will be more marked on the side of the hemiplegia, without always being accompanied by true ankle clonus or patellar clonus. We have here an example of a common law that simple muscular atrophy secondary to immobility or of a reflex nature

(arthropathies, fractures) is accompanied by increased tendon and bone reflexes.

Thus the discovery of such inequality of reflexes should not, *ipso facto*, entail the diagnosis of organic hemiplegia when the paralysis is accompanied by amyotrophy.

The plantar, cremasteric and abdominal reflexes remain normal in the majority of cases, although abnormalities have been observed (Dejerine, Sollier, Paulian, Lhermitte). But in such cases the hemiplegia is always accompanied by a significant cutaneous anæsthesia, and the absence of cutaneous reflexes is partly due to the latter. The normal plantar reflex is never reversed, and extension of the hallux definitely excludes the existence of a functional paralysis.

Hysterical hemiplegia is frequently associated with disturbances of sensation, to which we shall return later (the so-called hysterical hemianæsthesia).

During the last few years, in France and in other countries, there has been described a series of signs and symptoms for the differential diagnosis of hysterical and organic hemiplegia. One of the authors (Lhermitte) has proposed their grouping under the title of *The minor indications of organic hemiplegia*: (a) Hyperextension of the forearm or the arm due to muscular hypotonia; (b) platysma sign (absence of contraction of this muscle on the paralysed side; (c) associated movement of flexion of the thigh and pelvis (spontaneous flexion of the thigh on the pelvis when the patient in the sitting posture throws himself smartly backwards into the dorsal position) (Babinski); (d) sign of "complementary opposition" (Hoover): when the patient is asked to raise the paralysed limb above the plane of the bed, he carries out the reverse movement of the healthy limb, which is forcibly pressed against the mattress; (e) Heilbronner's sign: the muscular hypotonicity is shown by increase in the transverse diameter of the thigh; (f) flexion of the toes on gently percussing the sole

of the foot (Rossolimo); (g) flexion of the small toes on percussion by a hammer of the dorsum of the cuboid bone (Mendel-Bechterew); (h) extension of the great toe on deep friction of the calf muscles (Oppenheim) or by pinching the Tendo Achillis (Schäffer's or Gordon's sign); (i) lastly, transverse pressure on the tarsus or forcible flexion of the toes produces retraction of the lower limb, even when the latter is quite incapable of any voluntary movement (contraction sign of Pierre Marie and Foix).

All these signs are wanting in "hysterical" hemiplegia.

Hysterical hemiplegia with contracture or, more correctly, *hysterical hemi-contracture* develops suddenly: the limbs appear to exhibit an abrupt rigidity or complete contraction.

The condition of hypertonicity does not occur after a phase of paralysis, but spontaneously: this is the reverse of the case in spastic organic hemiplegia.

This hemi-contracture develops in two forms:—

(1) One characterized by an intense contracture of the upper and lower limb to such a degree that all passive movement is impossible. The lower limb is extended, the foot in equino-varus position and absolutely rigid. The upper extremity assumes a position of flexion or extension, but the flexed type is more often seen.

(2) The other, in which the hemiplegia assumes both a spastic and flaccid type: spastic as regards the contracted lower extremity, flaccid as regards the upper, which hangs absolutely inert beside the body. The contracture of the lower limb, possibly very marked, may be of the flexed or the extended type. In this condition the face is usually quite unaffected.

Henri Claude and R. Porak have recently made an analysis of movement in this paresis (hysterical or psychoneurotic "functional inactivity") by means of the ergograph.

In hysteria the simplest movement—*e.g.* flexion

of the second finger—is badly performed and incoordinate. With a submaximal weight the ascending part of the curve is irregular; made up of a series of sudden jerks, it gives the impression of an uncontrolled nervous influx which is suddenly discharged alternately in the synergic and antagonistic muscles concerned in the movement. The summit of the tracing is irregular, slow, and protracted; the descending line is equally irregular, interrupted by notches representing muscular discharges at the moment of relaxation.

If one studies a protracted voluntary contraction or, in other terms, if we examine the graphic record of static muscular work, it is found that in the hysterical, neuropathic subject the tracing is diminished in height, much elongated if the work demanded is minimal, and exhibits irregularities at the moment of relaxation.

Paralytic and spastic phenomena and disorders of sensation do not make up a complete picture of functional hemiplegia; to these must be added trophic and vasomotor manifestations and changes in the electrical reactions of nerve and of muscle, the nature of which must be understood.

The old conception of hysteria admitted without dispute the existence of these muscular, cutaneous, and tendon symptoms, which Babinski has justly ascribed to their real cause: malingering or fraud.

In long-standing hysterical hemiplegia, as, indeed, in any paralysis that has lasted sufficiently long, we find:—in the muscular system, diffuse amyotrophies without Reaction of Degeneration; in the osseous system, decalcification and rarefaction of the cancellous bone; lastly, from the electrical point of view, the paralysed muscles and nerves show a diminished reaction to faradic and galvanic stimuli after a certain length of time; the muscle-jerks remain brisk.

Rumpf has cited recently the production of a

fibrillary tremor, at first isolated and limited to the muscle-group directly excited, as characteristic of the contraction seen in hystero-traumatic hemiplegia. It is a muscular tremor reminiscent of a cornfield blowing in the breeze. Cooling the limb by applying ice is equally effective in determining this phenomenon. But Rumpf's sign is by no means constant in hysterical hemiplegia, and, on the other hand, it can often be observed in the organic variety (Pierre Marie). Lastly, as artificial cooling of the paralysed limb or muscle is sometimes effective in its production, it is legitimate to assume that the frequent low temperature of the paralysed limb is alone sufficient to bring about muscular tremor after fatigue.

With regard to vasomotor symptoms—*lowering of temperature, cyanosis of the paralysed extremities, profuse sweating, œdema*, etc.—these are also the result of functional inactivity. This is proved by their rapid disappearance when the hysterical paralysis or contracture has been cured by psychotherapy. We shall return to this subject, however, in a later section.

In any case, vasomotor or trophic phenomena cannot be considered as manifestations of a psychoneuropathic order but rather as organic affections due to immobilization.

With regard to segmental œdema, which has been seen by all neurologists during the course of the war, this should immediately suggest malingering and entail a search for marks of a constriction. Moreover, these "constriction œdemas" as Sicard rightly terms them, do not occur in hysterical hemiplegia, but rather in cases of pure brachial monoplegia or in wounded men who have an almost intact mobility.

HYSTERICAL MONOPLEGIA AND PARAPLEGIA

Motor affections localized in the upper or lower limbs—*monoplegia of the upper or lower extremity* or

of both lower extremities, *paraplegia*—are more frequent than psychoneurotic manifestations of the hemiplegic type. The number of these cases observed during the war is large, and the diagnosis and treatment of these psychical paralyses so often comes under medical observation that we must devote special attention to them.

Brachial Monoplegia.—There are two types, flaccid and spastic, the former being the more common.

(1) In the *flaccid type* the paralysis is complete and absolute; no active movement is possible; the upper extremity hangs down and swings as an inert body beside the trunk when the patient moves.

The shoulder is lowered, the forearm in passive extension, the hand also extended with outstretched and adducted fingers. The patient is incapable of carrying out the simplest movement and when by its own weight the immobile limb takes up an awkward posture, he replaces it in a more favourable position by means of the healthy member.

If the patient is sternly commanded to perform some elementary movement or other, and does not succeed, the limb remains inert; but sometimes a muscular tremor or undulation is observable under the skin, often in muscles which should not logically share in the movement in question. This is of some importance in diagnosis.

(2) In the *type with contracture*, rarer than the flaccid form, the limb is fixed, either in flexion or extension. The muscles are strongly contracted, projecting under the skin, hard to the touch. No movement is possible either active or passive, except movements at the shoulder-joint, which may be preserved. In contrast with organic contractures, all efforts to mobilize the limb are not only ineffectual but exaggerate the intensity of the contracture. The same holds for the application of Esmarck's bandage, which, as Brissaud has shown, causes re-

laxation of organic but exaggeration of inorganic contractures.

Crural Monoplegia.—According to our experience, this is much less often observed than brachial monoplegia.

(1) The *flaccid form* is especially rare and hardly ever complete; the patient is always able to execute some voluntary movements and to walk with the help of crutches or sticks.

It should be noticed that during the automatic movement of walking, muscles seem to contract which are absolutely inert when their mobility is tested with the patient lying down; on the other hand, this is very exceptional in an organic monoplegia.

(2) The *form with contracture* is common. It represents one of the most frequent types of the neuroses of war.

(a) In the *flexed type* the leg is incompletely flexed on the thigh and the thigh on the pelvis; contact with the ground is only made by the ball of the great toe. Walking is laborious and slow and accompanied by a limp. All the contracted muscles are hard to the touch and stand out in striking relief under the skin. Both active and passive movements are extremely limited, and as a rule it is impossible, even by employing considerable force, to correct the vicious posture.

(b) In the *extended type* the lower limb is absolutely straight, all the segments are extended, including the foot, which, as in the last condition, only reaches the ground by the ball of the toe. The result is that walking is only possible by tilting the pelvis on the affected side, this being necessarily accompanied by a curvature of the vertebral column with the convexity directed to the healthy side. Sometimes the foot is not contracted in extension, but immobilized in a position closely resembling the normal, only slightly extended. In such conditions walking is

much easier, and the contracture is not accompanied by any deviation of the vertebral column.

All the forms of contracture we have just described will, if allowed, be complicated by muscular shortening. Thus Charcot especially urged that hysterical contractures should not be allowed to get out of hand.

Paraplegia.—Of all the elementary motor neuroses of war, the paraplegic syndrome is the most commonplace and possibly the most frequent form. We shall not discuss here the various affections of the gait, which are dealt with in a later section (p. 39), but confine ourselves to true paraplegia without any added symptoms.

(1) In the *flaccid form*, which is the commonest type, the lower limbs lie extended on the bed; in spite of all efforts, the individual is incapable not only of moving them but also of producing even feeble contraction in any muscle. It is only by means of his arms that the patient can move the paralysed limbs, which are absolutely inert. All passive movements can be made with the greatest ease. Walking is quite often possible with the help of crutches. In the latter case it is important to note carefully the mobility of the lower limb during walking, as this gives us interesting information. It is seen that at the time of forward progression the lower limbs execute regularly the necessary movements, though with little force; and that certain muscles, incapable of voluntary contraction when the patient is in the recumbent position, contract fairly energetically during the automatic act of walking.

(2) *Paraplegia with Contracture* only assumes one type: that of extension. The two limbs are adducted and drawn together with the knees touching or slightly crossed, as in infantile spastic paraplegia (Little's syndrome); the feet participate in the general extension, and are in the equino-varus position. Attempts at passive movement only accentuate the contractures. The sacro-lumbar muscles are

often equally contracted, projecting on each side of the vertebral column; in such cases the lumbar part of the spine is like a rigid bar, the trunk following movement of the lower limbs.

As often happens in psychoneurotic paralyses, paradoxical cases are found, in which the paraplegia is, properly speaking, neither spastic nor flaccid but a combined spastic-flaccid type. In the recumbent position the patient is able to execute certain simple movements of the lower limbs; the latter are supple, sometimes even slightly hypotonic, but when he is placed upright by means of two sticks, his legs stiffen, the muscles stand out under the skin and he progresses with the lower extremities in complete extension, without any flexion of the knee.

The concurrence of organic and functional disorders is extremely frequent, and the resulting paraplegia, which at first sight appears entirely functional, is really made up of two kinds of phenomena, organic and neuropathic. This is sometimes seen in disturbances of the spinal medulla of long standing.

At its onset the paraplegia corresponds with a medullary lesion, shown by the classical and characteristic signs; then, when these have disappeared, the paralysis remains unchanged or is occasionally even increased. Apart from a certain liveliness of the tendon reflexes, it is impossible to discover any organic manifestation, but the impotence remains absolute. There is complete anæsthesia of the lower limbs, reaching to the sub-umbilical plane. Walking is difficult, and when undertaken the lower limbs are seized by marked contractures. We have even observed cases in which the patient progresses by hopping, and a false patellar or ankle clonus has occurred spontaneously or after manipulation.

Lastly, there are rare cases in which the paraplegia with contracture is organic in one limb and neuropathic in the other, and the individual presents the series of spastic signs on the one side and false clonus and hysterical tremor on the other.

14 ELEMENTARY PSYCHOMOTOR COMPLAINTS

The **Prognosis** of the monoplegias, like that of the functional hemiplegias, varies according to the clinical forms which they assume and according to whether they are free from any organic element.

All the pure forms should become completely cured, if given correct treatment. The neuropathic paraplegias are, however, especially liable to relapse.

Differential Diagnosis.—We must first consider the chief characteristics which specially belong to the paralyzes of psychical order and which permit of their differentiation from organic affections.

In making this diagnosis, importance must be attached to the following points: the conditions of their incidence, the clinical forms in which motor neuropathic affections appear, careful inquiry for and absence of somatic signs, psychological study of the individual, the course of the affection and the results of treatment.

(1) *Motor neuropathic affections* are, for the most part, directly referable to some trauma suffered at the front. They appear either immediately after the concussion or emotional shock, or after a "phase of contemplation" lasting some days.

(2) *From the clinical aspect*, functional paralyzes are distinguished by more obvious and blatant phenomena than organic motor affections: a flaccid paralysis is always more absolute; contracture is spontaneous, not preceded by flaccid paralysis, always very pronounced and causing extreme deformity. These contractures show many variations, are accompanied by a complete loss of muscular elasticity and do not yield to Esmarch's bandage.

(3) *Associated Signs*, such as pain and objective disorders of sensation, are rarely absent.

(4) During *Examination of the Paralysed Limb or Limbs*, when contractures are present, the patient's attempts to prevent movement of the immobilized joints should be carefully noted; contraction of the antagonistic muscles, even, may often be observed.

(5) *Complete absence of any change in the skin or tendon reflexes, of ankle clonus, of vasomotor, trophic, or sympathetic symptoms, of muscular atrophy and of change in the electrical reactions* (except in old cases with long-standing immobilization), are all fundamental signs of these conditions.

(6) Lastly, a good deal of importance is attached to a *psychological study of the patient*, such as the way in which he tells of his misfortune, the importance he attaches to the affection he is suffering from or believes himself to be suffering from, the lack of desire or hope of cure which he displays, and, finally, the manner in which he reacts to therapeutic measures (resistance, nervous crisis, tremor, outburst of weeping, etc.).

It would be out of place in this connection to review all the organic affections which might give rise to difficulty. We shall confine ourselves to citing a few of the more recent observations which we have drawn from a neurological study of the war.

In **Hemiplegia** differential diagnosis is easy, owing to the numerous signs which separate the functional from the organic variety. In actual practice it is especially the cases of mixed hysterical and organic origin, of psychical hemiparesis developing as a result of some cranial trauma, which give rise to difficulties.

We may cite the case of a man with a gun-shot wound in an "indifferent" region of the skull (over the frontal or the right occipital lobe). He exhibits complete flaccid hemiplegia, without any apparent reflex changes; the face is not affected; the diagnosis of hysterical hemiplegia seems obvious, the very cause of the complaint seeming to warrant this interpretation; and under the influence of suggestive treatment the paralytic phenomena quickly subside, but complete cure is not obtained. The individual is put down as a malingerer or exaggerator, and is sent back to his regiment with a sharp reprimand. After an interval the man is returned to a neurological centre for a fresh examination. Then it is that

minute signs of organic trouble are discovered: the spreading out of the toes (*signe de l'éventail*), Oppenheim's sign, the Mendel-Bechterew reflex, the diminution of the abdominal and cremasteric cutaneous reflexes on the hemiplegic side, sensation remaining normal. These are sufficient to justify the diagnosis of some organic lesion of the pyramidal tract.

In another case we may find a wounded man with a brachial monoplegia, accompanied by paralysis of the lower limb on the same side. But whilst changes in the reflexes and in reaction to electrical stimuli (*e.g.* in lesions of the radial nerve) are found in the upper extremity as evidence of the organic origin of the paralysis, nothing of this kind can be demonstrated in the lower extremity. The phenomenon of complementary opposition is absent. There can be no question of the correct diagnosis: there is a hystero-organic association, the paralysis of the upper limb being organic and that of the lower purely functional.

The same holds good in the case of the **monoplegias and paraplegias**. Certain wounds of the skull in the parietal region may be followed by a flaccid or, more often, a spastic monoplegia of the leg of a psychical order, which may be mistaken for an organic monoplegia by the less-skilled observer; this the more since the injury was in a portion of the skull covering the cortical motor centre for the limb in question and since, perhaps, additional evidence is adduced from some slight depression of the external table. But in contrast with organic monoplegia, the hysterical contracture is *immediately* established, is extremely pronounced and results in complete deformity of the foot, or is accompanied by external rotation of the entire limb. The cutaneous and tendon reflexes are normal and there is no disturbance of sensation as in cerebral lesions.

It may appear unnecessary to discuss the differential diagnosis of hemiplegia with contracture and tetanus.

But there are certain forms of tetanus infection, chronic and limited, in which mistakes may be made.

Cases in which there is legitimate cause for doubt are those that come under the heading of hysterical hemi-tetanus (Boker) on account of the exaggeration of the tendon and bone reflexes always found in chronic tetanus (Claude and Lhermitte), and which is very often accompanied by true ankle clonus and patellar clonus and by the spreading out of the toes (*signe de l'éventail*). However, the discovery of even a minor degree of trismus, of contraction of the abdominal muscles, of electrical hypersusceptibility of nerve and muscle (Claude and Lhermitte) will clinch the diagnosis of tetanus.

In the last place we must mention the so-called *habit-paralyses* and *habit-contractures*, which certain authors have distinguished from the hysterical motor affections. To our way of thinking, it is only a difference of degree, often difficult to fix. Whether a crural or brachial monoplegia or a functional paraplegia has arisen spontaneously without any previous organic lesion, or whether, on the other hand, it has followed an organic lesion—neuritis of the brachial plexus, sciatic neuritis, or discrete lesion of the cauda equina—the motor impotence caused by prolongation or persistence of the symptoms points in either case to a disorder or defect in the psychomotor mechanism. They are individuals who, more or less unconsciously, have continued not to make any use of a limb, to persist in some vicious posture, to continue limping in spite of the complete disappearance of any organic lesion. The habit-claudication, described later in dealing with affections of the gait, belongs to this class.

§ 2. PARALYSES AND CONTRACTURES LIMITED TO ONE ANATOMICAL REGION OR GROUP OF MUSCLES

Elementary motor affections of spastic or paralytic type, limited to a circumscribed region such as the

foot, hand, shoulder, trunk, neck, or a group of muscles, are frequently observed in the neuropathology of the war.

ACRO-PARALYSES AND ACRO-CONTRACTURES (Paralyses and contractures of the extremities of the limbs).

This term describes paralyses and contractures which are limited to the hand or foot. The war has furnished numerous and varied examples.

The exciting cause may be anything from the slightest skin abrasion or contusion to a genuine wound; in other and rarer cases they apparently arise spontaneously without any real cause being found, sometimes preceded by slight joint pains or vague discomfort.

(1) **Paralysis of the hand or foot**, complete and absolute, is rare, paresis is common.

The *hand* is usually limp and flaccid, as in radial paralysis, forming a right angle with the forearm in the extended position. Flexion of the fingers cannot be performed and the thumb alone retains a few limited voluntary movements. When the patient is asked to make some movement, the latter is frequently replaced by a series of wide oscillations—a more or less rapid tremor; this is of considerable interest, as it is absolutely pathognomonic. It is evidence of the contraction of the antagonistic muscles for the attempted movement. A muscle which is incapable of any voluntary contraction may be seen to stand out under the skin, struggling with sudden, brusque efforts against the action of the synergic muscles, which themselves respond not by a regular contraction but by a series of distinctly jerky contractions.

If sharp, passive movements of the forearm are made, the hand follows inertly like that of a dummy figure. Usually the tone of the paralysed muscles remains normal; but in some cases of long standing

we have observed a hypotonicity of the muscles, not so great, however, as that of muscles really paralysed. The hand is often cold, clammy and cyanosed. The skin of the hand and often that of the forearm also is usually found to be analgesic and hypæsthetic to touch.

In the *foot* the paralysis always appears to take the same form, the foot falling into the equino-varus position similar to the club-foot following paralysis of the external popliteal nerve, with "steppage" when walking.

When such a club-foot with equino-varus deformity is carefully examined, it is seen that the point of the foot is dropped and that the sole looks slightly inwards. The patient is incapable not only of making any movement of flexion of the foot, but also any movement of extension. All passive movements are easily performed, especially in old cases where there is slight muscular hypotonicity.

Just as in hysterical hemiplegia and paraplegia, we may find muscular wasting, vaso-motor disturbances and alterations in the electrical reactions (page 8), but they are observed only in cases of profound and long-standing paralysis.

(2) **Contractures of the Hand**, like those of the foot, merit attention on account of their frequency and the importance of their recognition and differential diagnosis. Babinski and Froment, in a series of careful observations, have attempted to separate from the general group of psychoneurotic phenomena a class of so-called *reflex* paralyses and contractures, following either superficial or deep wounds of the affected limbs.

We have to realize that these acro-contractures exhibit such polymorphic forms that it is impossible to describe them completely; each patient, as it were, creates his contracture in his own way, according to his individual personality. There are certain stereotyped forms, however, which are of very frequent occurrence. The *main d'accoucheur* (Meige),



FIG. 1.
Hysterical musculo-spiral paralysis.



FIG. 2.—Hysterical contracture of index
finger and thumb.



FIG. 3.—Hysterical contracture
of the left foot (five months).



FIG. 4.—The same patient two
days later, cured. [Page 21.]

PLATE II.

Fig. 1. HYSTERICAL MUSCULO-SPIRAL PARALYSIS (LEFT). CONTRACTURE OF THE RIGHT LOWER EXTREMITY OF A MONTH'S DURATION. M. H. M. Villejuif Hospital, 5th February 1915.

Wounded on the 2nd January 1915. Scar of a bayonet-wound on the anterior aspect of the right thigh. Scar of a lance-wound on the dorsal aspect of the right foot. Bullet-wound on the palm of the left hand. Left hand dropped and flexed on the forearm, fingers extended. Sensation: glove anæsthesia and analgesia, reaching to the bend of the elbow.

The right lower extremity exhibits paresis and contracture of the thigh and leg. Reflexes normal. No disturbance of sensation.

Discharged cured in May 1915.

Fig. 2. HYSTERICAL CONTRACTURE OF THE RIGHT INDEX FINGER AND THUMB. P. E., — infantry regiment. Villejuif Hospital, 15th January 1915.

Wounded on the 24th August 1914. Shrapnel wound on the external aspect of the right arm. No articular lesion. Contracture of index-finger and thumb in permanent flexion for several months.

The contracture was cured after a single sitting by psycho-electrical treatment.

Figs. 3 and 4. EQUINO-VARUS CONTRACTURE OF THE LEFT FOOT OF FIVE MONTHS' DURATION. S. A., aged 21, — bataillon chass. à pied. Neuro-psychological Centre of D.A.L., 30th August 1916.

Wounded on 16th March 1916 during practice-attacks, at the level of the left internal malleolus. Swelling and adenitis in the inguinal region; a month in hospital. Before abscess-formation, the foot began to show internal rotation: when the abscess healed, the contracture was definitely established.

On admission, irreducible contracture, patellar and Achillis reflexes were brisk on left side; slight wasting of the calf muscles. No appreciable vaso-motor symptoms. Temperature of left foot and leg somewhat raised.

Cure of the contraction after one sitting of psycho-electrical treatment. Pain and swelling lasted during the night, due to fatigue. Left cured on 12th October 1916.

PLATE III.

Figs. 1 and 2. POST-OPERATIVE NEUROPATHIC "GRIFFE CUBITALE."
AMPUTATION OF THE SECOND FINGER. D. H.; — hataillon
chasseurs. Villejuif Hospital, 9th January 1915.

Wounded on 15th September 1914. Compound fracture of the right middle finger at the level of the first phalanx. Amputation of the finger. About 16th November 1914, the right ring and little fingers began to flex; this flexion became more and more pronounced until the palmar surface of the finger-tips eventually became permanently pressed against the palm. No organic lesion of the ulnar nerve.

Fig. 1. Attitude of the hand on admission. Fig. 2. Twenty days later.

Fig. 3. NEUROPATHIC PARALYSIS OF THE HAND. H., aged 22.
Neur. Centre of Section VIII.

Complete paralysis of the hand following a superficial gunshot wound on the external aspect of the carpus. Glove anæsthesia. No modification of the electrical reactions.

Fig. 4. NEUROPATHIC CONTRACTURE OF THE HAND. C., aged 28.
Neur. Centre of Section VIII.

This contracture followed a very slight gunshot wound of the forearm. Electrical reactions normal.

Fig. 5. CLUB-FOOT DUE TO NEUROPATHIC CONTRACTURE OF THE
TIBIALIS ANTICUS AND SUPERFICIAL CALF MUSCLES FOLLOWING
EXPOSURE TO COLD. L., aged 25. Neur. Centre of Section VIII.

The patient walked on the external border of the foot. Note the prominence of the tibialis anticus.

PLATE III.



FIG. 1.—Hysterical *griffe cubitale*, before treatment.



FIG. 2.
After treatment.



FIGS. 3 and 4.—Two types of *main d'accoucheur*.



FIG. 5.—Hysterical club-foot, caused by exposure to cold.



FIG. 6.—Post-traumatic hysterical contracture.

of the cervical region. Pain is not produced by pressure on the spinous processes or by percussing the skull, but rather by palpation of the contracted muscles. The complete integrity of the cervical column will definitely exclude Pott's Disease.

With regard to meningitis, in face of the absence of the ordinary series of meningeal symptoms, it is difficult to see how mistakes could be made.

There is greater difficulty in differentiating from abortive or limited tetanus. In one case recorded by Claude and Lhermitte, there was absolute rigidity of the muscles of the back of the neck and the patient, not having received any wound, was put down as a neuropathic subject and as such was sent to the Neurological Centre at Bourges. But in contradistinction to cases of psychoneurotic contracture, his bone and tendon reflexes were profoundly altered. Percussion of the zygoma, occipital bone and clavicle produced a lively contracture of the already contracted muscles. Further, though there was no apparent spasmodic tendency in the lower extremities, ankle clonus, patellar clonus, and definite increase of all the bone and tendon reflexes were found to be present. We may add that in chronic, abortive, or limited cases of tetanus there is hyperexcitability of the nerves and muscles to faradic and galvanic currents (Claude and Lhermitte).

CONTRACTURES OF THE TRUNK

These are extremely common and produce the most varied types of spinal deformity: scoliosis, kyphosis, and lordosis. Of all these varieties the commonest is undoubtedly that in which the trunk is curved forwards. It is quite a new type, of which we have seen numerous examples during the war and merits special attention.

Spinal Curvature, Traumatic Kyphosis, Pseudo-Spondylitis, Camptocormia ("Bent Back").—These are the commonest terms used to describe curvature

of the trunk with an anterior concavity. Souques and Mme. Rosanoff-Saloff have suggested that the term *kyphosis* should not be used, as this incurving of the trunk is not accompanied by any abnormal curvature of the vertebral column, and they have suggested a new name for the condition: *camptocormia* (κάμπτω=I bend, κορμος=the body). The soldiers themselves have given it the term "le cintrage" (arching).

As a result of the concussion of a bursting shell, the soldier is violently thrown to the ground or against the parapet of a trench. After a complete loss of consciousness or only transient stunning, a severe pain becomes localized in the lumbar or sacral region, complete extension of the body being painful. From this time the abnormal posture is established. However long it persists, its characteristics remain the same.

Looked at from the front, the patient holds the trunk almost horizontal, the head generally in a stiff position, the anterior muscles of the neck and the thyroid cartilage projecting; the expression is fixed, the eyes open wide and looking upwards, the lower limbs extended or sometimes semi-flexed. The normal folds caused by flexion of the abdominal wall are exaggerated, and at the level of the groin, the epigastrium and the pubis, there are deep, transverse furrows. Seen from behind the patient presents a series of morphological changes, which consist essentially of the disappearance or flattening of the median lumbar fold, prominence of the spinal muscles (the sacrolumbar, longissimus dorsi group), disappearance of the lateral fossæ over the sacrum, and prominence of the postero-superior iliac spines, lengthening and flattening of the lumbar region. As regards the vertebral column, there is increased convexity in the dorsal region and the muscles are less apparent. The buttocks are flattened and widened transversely. The cervical part of the column is curved backwards and appears much shortened and without any promin-

ence of the seventh spinous process; the nape of the neck is marked by deep transverse furrows.

In uncomplicated forms walking is fairly easy without any limp. Sometimes there is an associated claudication and resemblance to hip-disease (*cf.* p. 72). During progression the trunk and head remain in this stiff, immobile position, which is striking enough in a state of rest.

If the patient is told to stand erect he may be seen to exhaust himself with vain efforts, the face becomes flushed and all the muscles of his body contract, but in spite of all these obvious efforts the bending remains unaltered. If the buttocks are supported by a firm object and attempts are made at passive correction of the trunk, a relative reduction of the curvature is usually obtained, but the correction is never complete. During this manipulation there is evidence of active resistance on the part of the patient; that this actually takes place is shown by the fact that the vertebral and abdominal muscles become still more contracted, as may be readily proved by palpation. If this attempt at correction is made at all forcibly, the patient complains of lumbar and sacral pain, especially the latter, and becomes extremely uneasy; his respiration is embarrassed and quickened, he becomes dyspnoëic, the face is terror-stricken, and the pulse becomes rapid; the test has to be given up. When again left to himself, the patient immediately assumes his former attitude and all the phenomena of fear and emotion vanish in a few seconds.

Attempts at correction in the recumbent position give very variable results; in many cases correction is effected with much greater ease than in the upright position and is sometimes complete; but to obtain reduction of the deformity, tactful management is especially needed.

Tests of sensation, of tendon, bone and skin reflexes, show that there is no sign of any organic lesion of the nervous system.

PLATE IV.

Fig. 1. CAMPTOCORMIA,¹ ANTERO-LATERAL CURVATURE. B. E.,
—— infantry regiment. Villejuif Hospital, February 1915.

Wounded on 3rd September 1914. Thrown into the air by a bursting shell: loss of consciousness, followed by severe pain in the back. Trunk bent forwards and to the right since this date. No wound.

In February 1915, application of a plaster jacket, which incompletely corrected the deformity in three weeks (M. Souques). Trunk now only inclined to right, not bent anteriorly.

Second application for three weeks, after which there was complete cure.

Left curcd and sent to the school for re-education (Grand-Palais).

Fig. 2. CAMPTOCORMIA, ANTERIOR CURVATURE. C. L., —— infantry regiment. Val-de-Grâce and Villejuif Hospital, March 1915.

Buried in débris by a shell on 25th August 1914. No wound or lesion of bone. Large ecchymosis in the lumbar region. Violent pain in the lumbar part of the column. Trunk flexed symmetrically, impossible to correct. On a bed or floor, could be completely reduced.

Plaster jacket three weeks in March 1916 (M. Souques); complete correction, maintained after removing the jacket.

Discharged cured.

¹ Cf. text, p. 25.



FIG. 2.
[P. 28.]

FIG. 1

Can the same be said of the musculature and of the vertebral column? This is the question that all observers of these curvatures have asked themselves. As regards the muscles, all that is observed is a state of contracture or contraction of the abdominal and sacro-lumbar muscles; palpation gives evidence of the hardness of the muscles, and attempts at correction with the patient in the standing position are followed by a paroxysm of contracture, but the most minute investigations do not reveal any muscular lesion whatever. It must be remembered that deep pressure on the muscles in the inferior lumbo-sacral region causes little or no pain. As regards the vertebral column, although in certain instances it cannot be examined clinically on account of its complete immobility, in the majority of cases the passive reduction of the curvature is sufficient to demonstrate the obvious integrity of the vertebral articulations: in making movements of flexion or extension no creaking or crepitation can be heard. Skiagrams also prove in all these cases that the spinal column is absolutely intact.

What is the nature of these curvatures? Certain authorities (Sicard), arguing from the occurrence of pain and discomfort and from the results of examination of the cerebro-spinal fluid, believe the forward bending of the trunk to be due to anatomical changes in the vertebral column itself (spondylitis), in the ligaments, or the muscles gaining insertion into it (syndesmitis, psoitis). Sicard thus explains the phenomenon as an antalgic curvature, at any rate in the majority of cases.

Our study of numerous cases of camptocormia over a period of more than two years leads us to differ from this explanation. Indeed, apart from a few rare exceptions, we have found no increase in albumin in the cerebro-spinal fluid. It is doubtful, too, if the discovery of increased albumin in these cases is as important as we have been led to believe. One of our curvature cases with high albumin

content recovered with much greater rapidity than certain others without this phenomenon. May we not consider that in these cases, an increased percentage of albumin is due, not to an organic nature of the affection, but rather to the spinal curvature itself, with the resulting hindrance to the venous and lymphatic circulation? Lastly, the rapid cure which follows energetic treatment, even in long-standing cases, clearly shows the psychoneuropathic basis of the disorder.

Although at the onset it is pain which has almost always been the primary cause of the vicious posture as observed in hospitals near the front (*cf.* p. 76), later on this is not the essential element in the curvature; it appears as an associated symptom: the patient becomes deformed not because he is in pain, but he suffers for the very reason of the extremely abnormal position of the trunk which causes pronounced stretching of the vertebral ligaments. This is shown by the fact that as soon as the correction is ultimately obtained, often in a few moments, these patients feel relieved and admit the mitigation and then the disappearance of the lumbosacral pain of which they previously complained. This applies in general to all psychoneurotic contractures.

It should be noticed, on the other hand, that soldiers with evident lesions of the vertebral column caused by gun-shot, shell or contusion do not exhibit curvature though this might seem likely at first sight. The same applies to cases of spinal osteitis due to Pott's disease or vertebral cancer, where in spite of the intensity of the pain (*pseudo-neuralgia*), a posture of the type of these curvatures of war is never seen.

Diagnosis.—All cases of curvature following concussion or vertebral contusion are not purely neuropathic. In some of them there may be evidence of a latent organic lesion, the result of trauma, or even

the production of some definite osseous or articular lesion.

Let us briefly recall the possible sources of error : *Pott's Disease* may be latent and only come to light on the occurrence of some spinal trauma ; diagnosis is often a delicate matter and demands minute investigation ; but in such cases it is usually a question of the vertebral column being fixed in an upright position and not with curvature. The discovery of definite painful points over the spine, examination of the cerebro-spinal fluid and later on the signs of compression of the spinal cord and nerve roots will prevent errors of diagnosis.

There is greater difficulty in the differential diagnosis of hysterical curvature from *traumatic spondylitis* or *Kummel's disease* : forward curvature of the trunk following trauma. In this case the curvature does not follow until several months after the spinal contusion, and is, moreover, preceded by a period of pseudo-neuralgia in the nerve roots ; the dorso-lumbar kyphosis is pathological.

Vertebral Ankylosis (Bechterew) and the *Rhizomyelic Spondylosis* described by Pierre Marie may also result from trauma. But in these conditions it is not the trunk which is flexed, but the vertebral column which is incurved and immobile ; the deformity develops slowly and the disease is progressive ; in Pierre Marie's disease the shoulder-joints or hip-joints are affected.

Bruising of the Intervertebral Discs (Kocher) causes pronounced difficulty in maintaining the upright position and in walking, with local and radiating pain ; it is also characterized by localized œdema over the spines of the affected vertebræ and cure takes place by synostosis.

Myogenic Ankylosis of the Vertebral Column (Schuster) is distinguished by disappearance of the normal spinal curves and is accompanied by paresis, increased tendon reflexes and muscular wasting, all of which are absent in camptocormia.

PLATE V.

Figs. 1 and 2. VICIOUS POSTURE AND LIMPING OF THE HIP-DISEASE TYPE (RIGHT), OF FOUR MONTHS' DURATION, FOLLOWING A SUPERFICIAL WOUND IN THE RIGHT FLANK. M. L., aged 36, ——— infantry regiment. Neurological Centre of ———th Army, 16th November 1916.

Wounded on the 9th June 1916 by a machine-gun bullet in the superficial tissues of the right flank. The patient was said to have suffered and limped since July, from the time when he first left his bed. Several nervous crises since being wounded; forty-five days' convalescence. Request for extension of sick-leave refused; stayed in a neighbouring dépôt for affections of the gait, whence he was sent back for treatment.

Pronounced limping of the type seen in hip-disease, trunk inclined slightly forwards and to the right, fold of the right groin strongly marked. Right foot only touches the ground anteriorly; the knee is held slightly flexed. Respiration panting on walking. Tendon and skin reflexes brisk. No disturbance of objective sensations, but sharp pain referred to the situation of the scar.

Isolated for two days, then treated by psycho-electrical methods; violent defensive reactions; at the end of this single séance of treatment walking was carried out normally. Retained for six weeks to make certain that cure was permanent. Left 30th December 1916.

Fig 1. Appearance of patient on admission. Fig. 2. Three days later, cured.

Figs. 3 and 4. LONG-STANDING SCIATICA OF THREE MONTHS' DURATION. D. M., aged 33. Neurolog. Centre of D.A.L., 13th August 1916.

Very pronounced limping, trunk considerably inclined forwards and to the right, left knee not flexed when walking, all the toes dorsally flexed and not touching the ground. Lasègue's sign. No alteration in tendon reflexes.

No improvement after epidural injections and the usual methods of treatment. After one sitting of energetic faradic stimulation, the gait became about normal and the vicious posture was corrected. Absolute cure in a few days.

PLATE V.



FIGS. 1 and 2.—Vicious posture and limping of the hip-disease type (right side) of four months' duration. Left: appearance of patient on admission. Right: after cure.



FIGS. 3 and 4.—Long-standing sciatica of three months' duration (right side). Left: patient before treatment. Right: after treatment.

Lordosis from Contracture of the Dorsal Muscles.—Backward bending of the trunk is as rare as the forward bending is common. The reason must be sought for in the general law of contractures, according to which deformity is usually produced in conformity with the most powerful of the muscles acting on the part; possibly also in the fact that to avoid injury from falling objects the instinctive protective movement is one of bending forward; lastly, in the fact that hysteria usually copies such attitudes as are the easiest to reproduce or to maintain voluntarily.

The patient's trunk is bent backwards, the head is flexed and the expression is fixed. Walking is performed with ease, but during progression the trunk is immobile and fixed. Correction, forward flexion of the trunk, is almost impossible in the standing posture, but is quite easily performed in the recumbent position. This contracture, also, is accompanied by pain in the loins and back.

Scoliosis from Contracture of the Abdominal and Sacro-lumbar Muscles.—Lateral flexion of the spinal column by contracture, although rarer than lordosis and kyphosis of the trunk of traumatic origin, and resulting from temporary burial for example, is frequently observed as a habit-posture following long-standing sciatica. We have seen examples of this which have been completely corrected by re-education.

In the pure neuropathic cases the trunk is considerably bent over either to the right or left, the cutaneous folds of the flank being strongly marked and the lower ribs coming into contact with the iliac crest. Examining the patient from behind, the scapula and upper extremity are found to be depressed, the normal curve of the dorsal column and the compensatory cervical curve unaltered. The dorso- and sacro-lumbar muscles in the concavity of the vertebral column are prominent and hard to the

touch, obviously contracted. The serratus magnus and the oblique muscles of the anterior abdominal wall appear in an evident condition of hypertonicity on palpation.

We have found that correction of this deformity is more readily obtained than that of lordosis and kyphosis, and permanent cure also seems easier to effect.

The contractures we have outlined in the preceding pages will be seen to present a whole series of common characteristics, which we believe justify us in including them in the same nosological category and ascribing to them the same pathogenesis.

The course of these conditions forms an additional bond of union. It is true that their cure is frequently but not always more difficult to obtain than that of the paralyses; however, these contractures disappear under the influence of counter-suggestion, persuasion and other means, but with the proviso that physical re-education takes a prominent place amongst the therapeutic measures employed. The reason is that here, as in the other motor conditions, a mental element is added to the muscular disorder, which is the essential factor from our point of view.

DIFFERENTIAL DIAGNOSIS AND NATURE OF PSYCHO-NEUROPATHIC CONTRACTURES IN GENERAL

We shall not dwell on the differential diagnosis of localized contractures and those secondary to organic affections of the central nervous system.

In an acro-contracture, or one still more limited, the only problem which presents itself is to decide on the neuritic, muscular, reflex or psycho-neuropathic nature of the deformity.

It is known (Volkmann) that the application of too tight a bandage may be followed by a retraction of the muscles of the hand or foot after considerable pain, which at first sight simulates functional con-

tracture. But in this instance the deformity of the hand or foot is not due to contracture, but to the muscular retraction brought on by anatomical changes of the muscles, whose supply of fluid has been interfered with for too long a period. The retracted muscles are hard to the touch and painful. In case of doubt, spinal anæsthesia (for the lower limb) or a general anæsthetic will settle the diagnosis by demonstrating either the complete disappearance of the contracture or the absolute irreducibility of the retraction.

André Thomas and G. Guillain have shown that in certain peripheral nerve lesions, not paralyses but contractures may be observed, phenomena which may bring to mind fibro-tendinous retraction or psycho-neuropathic contracture.

We have seen a few cases of this kind, but they are extremely infrequent. These contractures especially affect the hand and forearm, when the question arises of a lesion of the radial, the median, and, exceptionally, of the ulnar nerve. The distinguishing point that at once characterizes this form of hypertonicity is that it does not affect muscular groups at random as in neuropathic contracture, but that it is limited to a group of muscles having a common nerve-supply; also that its appearance is preceded by a phase of paralysis.

We will again mention that psycho-neuropathic contracture is usually not limited to a group of muscles supplied by a single nerve and that it occurs either immediately or very soon after the initial trauma.

When the hypertonicity is secondary to a nerve lesion we always find more or less definite changes in the electrical reactions of the muscles and objective disturbances of sensation: hyperæsthesia, tingling on touch, paræsthesia. As the pathogenesis of these contractures secondary to lesions of nerve-trunks is still obscure, we think they should be considered as the expression of an irritation of the motor nerve and not as a reflex contracture.

The differential diagnosis of *psycho-neuropathic contractures* from the so-called *reflex contractures* that Babinski and Froment have specially studied, is a much more delicate matter. Without entering into a discussion which would be out of place in this connection, we must remark that the diagnosis of contracture or paralysis of reflex type ought not to be carelessly applied on the sole discovery of a condition of contracture or paralysis secondary to a lesion of a limb or of the body. Such a contracture or paralysis necessarily presents special clinical characters and may be in keeping with an evident lesion of part of the affected limb. It is quite common, for example, to see contractures of a reflex order accompanying articular, osseous and muscular lesions; and, owing to the researches of Hunter, Charcot, and Dubreuil, they constitute an important factor in diagnosis and are often a valuable guide in seeking for some lesion which is not apparent at first sight.

The same considerations hold good for contractures which result from the irritation produced by the presence of a foreign body adjacent to branches of nerves.

Babinski and Froment have made a careful analysis of these "reflex" paralyzes and contractures, better styled "physiopathic"; and have ascribed to them a series of features which allow of their complete differentiation from similar manifestations of a psycho-neuropathic order.

These contractures or paretic conditions have this common characteristic: they are sharply localized in a segment of a limb or in certain muscular groups—usually of the extremities. Though the tendon and bone reflexes may not be modified to any extent, there is generally a condition of mechanical hyper-susceptibility of the muscles of the affected limb, with a corresponding hyperexcitability to faradic and galvanic currents with rapid fusion of the contractions (premature tetanus) or sometimes slightly decreased excitability. Occasionally the nerves

themselves also exhibit this hyperexcitability to electrical and mechanical stimuli.

These modifications of excitability are partly the consequence of the lowered temperature of the wounded limb (Babinski and Froment); they improve on the application of heat and are exaggerated by cooling. Like all the contractures, they disappear under anæsthesia; but it is often only under deep narcosis that they disappear. Chloroform anæsthesia, on the other hand, brings to light the hyperexcitability of the medullary centres, causing a selective exaggeration of the tendon and bone reflexes in the affected limb and in it alone. Lastly, important vaso-motor symptoms are of frequent occurrence: cyanosis, lowering of temperature of the extremity by several degrees, diminished amplitude of the arterial pulse measured on a Pachon's sphygmomanometer; also disturbances of the sweat-glands and decalcification of the bones. The latter phenomena, according to Babinski and Froment, reach a degree of severity much greater than the maximum seen in old-standing neuropathic conditions.

With regard to *paralyses of a reflex type*, these are characterized by changes in excitability of the muscles to faradic, galvanic and mechanical stimulation, by decreased muscular tone, and often by muscular wasting. It should be noticed that although it is well known that reflex amyotrophy secondary to arthritis or an osseous lesion is usually accompanied by definite exaggeration of the tendon and osseous reflexes, in the above conditions Babinski and Froment show that there may be no modification of the reflexes.

These paralyses and contractures of a reflex type are, in their nature, very resistant to treatment by psychotherapy.

A condition very similar to Babinski and Froment's reflex contracture is the affection described by Pierre Marie and Foix under the name of *paratonic paresis*

of the motor muscles of the hand; the hand, flexed on the forearm by contraction of the palmaris muscles, presents a deformity analogous to that of the *main d'accoucheur*, or like a swan's neck; the fingers are inflexible and difficult to mobilize.

To sum up, the diagnoses of localized paralyses and contractures presents, in the great majority of cases, no real difficulty. We cannot, however, even in cases which seem most definitely psycho-neuropathic, insist too strongly on the necessity of making a methodical examination both of the reflexes and the electrical reactions. Combinations of hysterical or neuropathic and organic causes are so frequent that only the careful observer can differentiate that which arises from a muscular, nervous, articular, osseous, or vascular lesion from that which is attributable to a neurosis.

With regard to *paralyses or contractures of reflex type*, these seem to be rare, and the clinical signs which Babinski and Froment have attributed to them are not sufficiently characteristic. Such symptoms, indeed, are frequently found in cases of paralysis or contracture of fairly long standing and are secondary to lowered temperature, venous stasis, and immobilization. Besides, the term "physiopathic" paralyses and contractures, more recently employed by these authorities, is much more exact and avoids controversy.

As Claude has shown, many paralyses or contractures at their onset may remain for several hours of a reflex nature, but the fixation of the motor affection is effected by the psycho-neuropathic state. The best proof we can adduce of our argument is that *all* the signs described by Babinski and Froment as characteristic of reflex disorders may be found in paralyses and contractures *without any bodily wound*, and that they *disappear* under treatment by psychotherapy (Claude and Lhermitte).

CHAPTER II

PSYCHO-NEUROPATHIC DISTURBANCES OF THE GAIT

THE psycho-neuropathic disturbances, which may affect the action of walking, have appeared in diverse and varied forms during the course of the war. We have already studied several types in the sections on hemiplegia, crural monoplegia and paraplegia.

The function of walking, when analysed, appears extremely complex. For its correct performance it is necessary that not only must the motor and sensory functions be intact, but also the cerebellar co-ordinative mechanism must not be disturbed, nor the visual or auditory apparatus, by means of which we determine our position in space. The very complexity of the systems of equilibration and co-ordination accounts, in part at any rate, for the readiness with which their functions are disturbed in the psychoneuroses. Further, if the function of walking, after having been a voluntary and conscious act, becomes by its very repetition an automatic performance, it must be remembered that this automatism is on the same level as consciousness in that it is highly susceptible to the psychological changes, the sentiments, the emotions, and the suggestions which are the basis of the psychoneuroses.¹

¹ In a recent monograph, Laignel-Lavastine and Courbon (Paris Médical, 2nd Sept. 1916) divide the functional disorders of the gait into three groups: the first is characterized by dynamogenic phenomena, the second by inhibitory disturbances, and the third by a mixture of the two. Attractive though it may appear, this scheme seems difficult to apply to disorders of the gait, because of the mingling in each separate case of dynamogenic and inhibitory

The study of functional disorders of the gait shows that one class of these has as a psychological substratum an active emotional condition, the other a condition of suggestibility of which the clearest expression is the fixation of the disturbance of a bodily function.

We shall use the term *basophobic disorders* to describe the former, *abasic or dysbasic disorders* the latter.

§ 1. ASTASIA-ABASIA ; DYSBASIA

Astasia-Abasia.—This syndrome, described by Jaccoud, Blocq, Charcot and others, is one of the commonest seen during the war; although rare in the complete form, it is common in diminished or abnormal forms.

Usually following the shock of explosion of a projectile of large calibre, its onset is rapid; and as emotional and concussion phenomena are not in evidence it is easily recognized.

It commonly occurs in a man who has been thrown to the ground more or less violently and who has rolled into a trench or hollow. He has sometimes been able to get back to the first-aid post either by laborious walking or by crawling along the ground. By the time he gets to the ambulance he is quite unable to walk.

When he is examined lying down he exhibits no elementary motor disorders: all movements, muscular power and tendon, osseous and cutaneous reflexes are normal.

If placed in the upright position he either collapses on his flaccid lower limbs or the latter 'are shaken by a rapid tremor which ends in an indefinite treading movement. When told to walk, his limbs are incapable of action, and in spite of an obvious effort

elements, and because of the uncertainty we always experience as to the exact nature of the psycho-neuropathic phenomena which disturb the automatic performance of the act of walking.

his legs are quite unable to execute a voluntary movement. He is unable to walk even with the aid of two sticks ; the limbs are dragged along inertly, as in true paraplegia. In other cases there is an extremely pronounced contracture of the lower limbs which seem to resist the execution of any movement of walking.

Dysbasia of Choreiform or Saltatory Type.—The gait is inco-ordinate, the lower limbs are put forward asymmetrically, as in the next type, but in this variety walking is still more inaccurate ; not only are the alternate movements of the lower limbs irregular and asymmetrical, but also spontaneous, “ choreiform ” movements not having any connection with the object in view are superimposed on the automatic movement of walking. When standing erect, the muscular disorder may be quite obvious, but is always exaggerated on walking (dysbasia with tremor). If the upper extremities are not involved cases may be observed in which, during standing or walking, the arms are shaken by brusque and jerky movements of flexion and extension, and the hands are never at rest.

Dysbasia of Pseudo-Tabetic Type.—Here again all movements of the lower limbs are carried out normally in the recumbent position. When walking, however, the patient progresses throwing forward the lower limbs ; he kicks his heels, swings the limbs and widens his base. At first sight it looks like true ataxia. It should be noticed that forward progression is effected without the individual experiencing the least discomfort or the least fear. When placed upright, irregular, wide oscillations, both antero-posteriorly and laterally, are observed, not exaggerated by closing or covering the eyes. The malprogression is not exaggerated in the dark.

Dysbasia of Pseudo-polyneuritic Type.—Just as the last condition roughly resembles that of ataxia,

PLATE VI.

Figs. 1 and 2. ASTASIA-ABASIA WITH TREMOR. V. A., — infantry regiment. Villejuif Hospital, 20th March 1916.

Wounded on 23rd September 1914. Gunshot wound in the middle of the left thigh, anteriorly. Unable to walk from the moment he was wounded ; then he was gradually able to hold himself erect and to walk. Returned to the front in January 1915.

Again wounded on 6th January 1915 ; this time a slight lesion in the nape of the neck. Sent to hospital and an operation performed. From this time unable to walk or stand upright. Reflexes normal. Normal motility when the patient was lying down, but movements were performed slowly. When placed in the upright position the patient was seized with tremors and could not maintain the vertical posture nor make a single step forward. Using a pair of crutches, he dragged both legs after him.

After electrical treatment (faradic current, wire brush) he was able to stand upright and walk. Cure after one séance of treatment.

Figs. 3 and 4. ASTASIA-ABASIA DUE TO SHELL-SHOCK. P. G., — infantry regiment. Villejuif Hospital, 8th July 1915.

Wounded in September 1914. Superficial wound of the thoracic wall under the right nipple. Thrown into a very deep shell-crater. He reached the field-ambulance without help but could only walk with short steps. From this time, spasmodic, tremulous and hesitating gait. Using two sticks, could only walk laboriously and with a tremor. At each step forward, swung the body forwards, only taking short and very irregular steps, and gave the impression of a man drawing a vehicle and at each step making a great effort to advance.

One séance of electrical treatment (faradic current, wire brush) cured the patient.

Left : Appearance and gait on admission. Right : Cured.

PLATE VI.



FIG. 1.—Mode of progression
on admission.



FIG. 2.
Cured.

Astasia-abasia.



FIG. 3.—Spastic and tremulous
gait on admission.



FIG. 4.
Gait after cure.

Astasia-abasia with tremor.

this type has certain features in common with the complex condition seen in polyneuritis of the lower extremities on the way to recovery, the disorder having both a paralytic and an ataxic element. This seems also to be the case in certain types of psychoneuropathic astasia-abasia. The patient can hold himself upright fairly easily, although sometimes he first shifts his ground as if seeking to find his centre of gravity. Forward progression is characteristic: the thigh is unduly flexed, while the leg remains vertical, the foot slightly dropped as in the "steppage" gait. The limb which is advanced comes heavily to the ground. Thus progression takes place with exaggerated "steppage" and abruptness of movements.

Atypical Forms.—In addition to the types we have just described and which seem to be the most often observed, astasia-abasia may take the form of other affections of the gait, a complete description of which is impossible by reason of their extreme diversity. We will only mention the most distinct varieties.

(1) *Tight-rope walker's gait.*—The upright posture is practically correct; even with the feet together the patient is steady enough on his legs, but when he is asked to walk his lower limbs become stiff. He makes obvious efforts. Progression is effected exactly in the manner of a tight-rope walker. With eyes fixed straight in front of him and tense features, the patient advances by small steps, placing the feet alternately one in front of the other. On account of the contracture of the lower limbs, which gives him an unstable equilibrium, progression is difficult and he holds out his arms as if holding a balancing-pole; in spite of this, his equilibrium is imperfect and he is obliged to make three steps to the right or left, after which he again continues his advance.

(2) *Knock-kneed gait.*—A special type of gait observed in one of our own cases. Nothing abnormal

PLATE VII.

Figs. 1 and 2. LIMPING OF THE HIP-DISEASE TYPE (LEFT SIDE) AND FORWARD CURVATURE OF THE TRUNK, OF A YEAR'S DURATION. M. P., aged 29, —tb chasseurs. Neuro-psych. Centre of D.A.L., 2nd September 1916.

Wounded by shell in the left flank and buried on 29th July 1915; loss of consciousness, embarrassment of respiration and mutism. Walked bent forwards and limping since 25th August 1915.

Several times in hospital and six months at the dépôt. Sent to the front on 20th June 1916 after having been recommended for light auxiliary service at the divisional dépôt. Underlying mental deficiency. By one séance of electrical treatment the vicious posture of the trunk was corrected. Limping persisted and necessitated prolonged daily treatment by re-educative methods.

Discharged cured on 20th October 1916, without limp or curvature; slight lumbar pain persisted. Given sick-leave.

Left: Posture of patient on admission. Right: Eight days later, cured.

Figs. 3 and 4. HYSTERICAL PARAPLEGIA, "TRIPOD" PROGRESSION; RIGIDITY OF THE LUMBAR VERTEBRÆ, LASTING SIX MONTHS. J. G., aged 45, —territ. Neur. Centre of D.A.L., 28th August 1916.

Spontaneous onset as a result of exposure to cold, and diarrhœa followed by constipation; the curvature and affection of the gait developed progressively in the casualty clearing station.

Arrived carried on a stretcher; walking extremely difficult, by means of holding on to a stick with both hands; tremor of both legs, which were in a pseudo-spastic condition.

Psycho-electrical treatment on the following day, resulting in complete cure. Mental deficiency and constitutionally neurotic.

Discharged cured on 20th October 1916, on sick-leave.

PLATE VII.



Limping of the hip-disease type with curvature of a year's duration.

FIG. 1.—Appearance of patient
on admission.

FIG. 2.
Cured.



FIGS. 3 and 4.—Hysterical paraplegia, "tripod" progression,
with lumbar contracture.

when at rest, standing upright; but when the patient commenced to walk, the lower extremity became flexed and the knee turned inwards at each step, the trunk plunging forwards and inclining to the side of the leg supporting it.

(3) *Walking as if on a sticky surface* (Laignel-Lavastine and Courbon).—The patient advances by sudden steps, the back arched and the hands applied to the hips. He walks as if on a sticky surface.

(4) *Bather's gait* (Laignel-Lavastine and Courbon).—This gait resembles the movements of a man struggling against the tide, advancing into the sea. He throws back his body and raises his legs laboriously.

(5) *Scrubber's gait* (Laignel-Lavastine and Courbon).—The legs are extended; the foot is not raised from the ground, on which it rubs and drags along. He seems to drag along as if with rivets in his ankles.

§ 2. STASO-BASOPHOBIA

Although this roughly resembles astasia-abasia, and although the functional disorder causing it produces much the same tangible result, *i.e.* impossibility of standing and walking, its intimate mechanism differs widely from that of true astasia-abasia. The latter is a disturbance of the automatic performance of walking, the former is an inhibition of this automatism dependent on an emotional condition. And although astasia-abasia and staso-basophobia both belong to the psychoneuroses, the former come within the category of the hysterias, the latter that of the phobias, hyper-emotions and obsessions.

Further, in spite of their apparent resemblance, how different these two conditions really are! In the recumbent position elementary movements are performed almost normally. When placed upright the patient's facial expression immediately changes and instead of appearing calm, he shows fright, anxiety and terror. He begs to be held up, says he is going to fall and that everything is revolving round him.

He clutches at the sticks which hold him up or clings desperately to the furniture around him. There is no question of making him walk—he can only be made to take a single step with difficulty: if he puts one leg forward he quickly draws it back, certain that he is about to fall.

Sometimes the clinical picture is less dramatic and, strongly supported, the patient succeeds in slowly and timidly moving his lower limbs. The feet are uneasily raised from or slip along the ground; often, in spite of his efforts, the legs flex, the foot does not entirely reach the ground and is a new source of distress. Pale, trembling, and bathed in perspiration, the patient begs to be allowed to rest.

Both in the case of staso-basophobia and astasia-abasia, these patients are always favourably influenced by psychotherapy; methodically and vigorously carried out, psychical re-education, aided more or less by the usual methods of physical training, results in a cure of these psycho-neuropathic affections of the gait.

Diagnosis.—Affections of the gait have many origins, both organic and functional. Thus in any given case the question must be considered as to whether the disorder is provoked by some definite lesion or by some purely functional condition. Simple though this may seem at first sight, it is often far from an easy matter, especially in cases where both elements are concerned.

The organic affections of the nervous system which produce affections of the gait are too numerous and well known to be described here.

Besides, mistakes should not be made given a methodical examination of the sensory, motor, and reflex functions and of the vestibular and cerebellar mechanisms of equilibration. There is much greater difficulty with cases in which psycho-neuropathic disorders are added to organic lesions, and their recognition is a hard problem. According to the

personal tendency of the observer, we have often seen patients exhibiting both elements diagnosed sometimes as organic and sometimes as purely neuropathic. This failure of recognition is, however, important and ought not to be considered lightly; it is of essential and practical importance, since on the solution of this problem depends the decision of the military value of the soldier.

We will only stop to mention functional disorders of the gait resulting from lesions of the vestibular apparatus. The war has shown frequent examples of labyrinthine disturbances following the explosion of large projectiles. Since the vestibular apparatus is the essential organ of equilibration, one can easily understand the frequency of disorders of station and locomotion following cerebral concussion or wounds of the cranium, as Moutier, Lhermitte and Cestan have pointed out. But although the cerebellar syndrome may be more or less clear in the psychoneuropathic phenomena, the vestibular syndrome is very frequently masked by astasia-abasia or stasobasophobia. We have ourselves observed several cases of wounded men in whom there existed without doubt a labyrinthine lesion following concussion; but only testing the vestibular branch of the eighth nerve by the most delicate methods will reveal these slight lesions (galvanism, Bárány's experiment, etc.). In spite of the minor degree of modification of the vestibular function, these patients were incapable of walking and even of maintaining the erect position, without assistance.

Guillain and Barré have quite recently observed the phenomena of astasia-abasia in patients with specific lesions of the labyrinth, which do not differ from those we have described.

§ 3. HABIT-LIMPING

Cases which come under this heading are, according to our experience, very numerous; the subject

had been little understood or studied in France before the war. H. Meige, in October 1915, drew attention to these cases at the Paris Neurological Society.

In previous sections, dealing with the elementary motor disorders—neuropathic hemiplegia or paraplegia, we have mentioned the so-called “habit paralyses” (Ehrer).

But in studying disorders of the function of walking we must describe separately “habit-limping.” They possess a real and important interest by reason of their frequency, by the fact that they are imperfectly understood or even ignored by the physician and because of the difficulties of diagnosis and of interpretation which they exhibit.

Their causes are those which, at a given moment, have been the origin of functional impotence of a lower limb: wound, fracture with prolonged immobilization and extension apparatus, painful affections of the limbs, arthritis of the hip-joint or knee, rheumatism and more especially sciatica and neuritis.

In short, an organic cause, often very slight, produces an antalgic position, an abnormal attitude, a defective use of a limb, or even contracture of certain groups of muscles, conferring on the limb a vicious posture with an affection of the gait. This abnormal method of walking gradually becomes automatic; the patient more or less unconsciously is unable to alter it; it has passed into the sphere of the unconscious and become a “habit.” This is the only remnant of the functional disorder, and the individual finds it a matter of great difficulty or even impossibility to overcome it by himself. As Meige puts it, “Habit creates aptitude towards an attitude.”

The vicious posture at first behaves as one would expect: if such a patient flexes the leg when walking, it is because the heel is painful or there is discomfort along the course of the sciatic nerve, for example. The abnormality lies in the fact that the posture is

indefinitely prolonged after the organic cause has long disappeared.

The morphological and clinical aspect of these cases is so extremely variable that we cannot give a common description of them. We have had and shall again have occasion to refer to them several times in the course of this book in dealing with motor or sensory disorders of neuropathic type. Moreover, the subject is one little understood.

We will only say for the time being that one cannot attach too much importance to the minute observation of all the motor actions which direct the very complex automatic movements of walking.

In a methodical analysis of the gait and of the causes which disturb it and promote limping, one often succeeds, unknown to the patient, in discovering some features which are illogical and paradoxical, not in accord with the lack of power or the pain of which the patient complains; such signs may give a clue to the diagnosis. Sometimes the limp is characterized by the simple irregularity in the length of the paces taken or in the length of time during which one of the extremities is applied to the ground. Sometimes, and this more often, it is by a physiological disuse of one of the joints, the freedom of movement of which is limited by contractures or a vicious posture: walking on the toes, or flat on the foot (the heel and ball of the great toe both touching the ground at the same time), or with leg and foot turned outwards, etc. A type of limping which belongs to the same category and seems to be particularly common is *claudication with dorsal flexion of the toes*; R. Leroux and one of the present authors have drawn attention to this condition. It occurs in patients who have had somewhat vague, "rheumatoid" pain, sciatica, or frost-bitten feet with so-called neuritic symptoms and who maintain the claudication for many months; the limp is due to the fact that the patient applies the ball of the foot to the ground but lightly and the toes fail to reach

it at all, being maintained in almost constant dorsal hyperflexion. Walking is carried out, as regards the affected foot, as if the patient were walking barefoot over a surface covered with small stones.

Changes may also be observed in which he balances himself by the use of one arm, the other arm often remaining immobile, or with vicious postures of the head or trunk. In short, it is one or several of the complex actions of walking which are affected—a principal action (movements of the lower limbs) or an accessory action (equilibratory movements of the trunk, head, or arms, etc.). All these affections are exaggerated by running.

But apart from the paradoxical movements mentioned above, we have not shown the differentiation of prolonged and old-standing habit-claudication and recent, true claudication of organic origin. The point that characterizes the former is that frequently nothing is found to account for the claudication when the patient is lying in the recumbent position, at rest on a bed; it is only while standing upright or walking that the vicious posture or motor phenomena make their appearance. Various methods can be used to render evident the “illogical” character of these claudications. One of these is the *marche à genoux* (Meige) in cases of limping by contracture of the muscles of the hip and tilting of the pelvis. Disconcerted by this unusual method of walking, the patient—at any rate at the commencement of the test—“forgets” his vicious posture and his limping.

We have often observed this occurrence in walking with changes of step, in walking backwards, and in walking or running to a certain fixed spot. These tests serve both as methods of examination and useful means of re-education. The automatism recently created to fit in with a vicious gait has not become sufficiently fixed in the realm of the subconscious to become spontaneously adapted to

complex and unusual motor actions, such as the above.

The nature of these disorders is difficult to define precisely, especially as their origin appears to be connected with various causes.

On the basis of cases actually observed, three different types of patients can be described :

(a) In some cases the claudication is only the effect of a contracture, pain, or a hysterical paralysis, little evident or not apparent except when walking or in the upright position, but revealing itself on the slightest attempt at progression. To this class belong the cases we have just described. The disorders of the gait are only secondary to a vicious posture of the limb or body ; at the most, they only make for its maintenance or reinforcement and for this reason alone come within the scope of our subject. They are neuropathic patients in whom the vicious posture must be treated and cured ; with its disappearance the disorders of the gait also vanish.

(b) In other cases pain or functional paralysis, muscular weakness, stiffness of joints become considerably improved and do not exist, even according to the patients' own statements, except when walking. In spite of this, the claudication persists in a well-marked degree. The individual limps because he is in pain, but in reality the reverse is the case : he suffers because he limps. The vicious posture and abnormal gait which have become a habit created by fear of pain are really the principal phenomena, which cause or maintain the pain. This is well shown by the fact that the latter vanishes with the claudication under the influence of psychotherapy and psychomotor re-education. In numerous cases, by these means we have been able to obtain definite cure of limping that has lasted many months.

These are true psychopathic conditions, minor

obsessions on the same level—except for slight shades of distinction—as staso-basophobia. Also it is frequently individuals in a state of mental weakness who persist in maintaining claudication.

(c) In a third class of patients we have to recognize a wilful inertia; they make no attempt to modify their disorder, prolonging or even exaggerating or simulating an affection. These, of course, are pure malingerers, amenable to stern treatment. Cases in this category appear to be rare compared with the two preceding groups.

Finally, in settling the **diagnosis** of habit-claudication, the greatest care must be taken to make a minute examination of all the locomotor or nervous mechanisms which control the function of walking, in order to exclude any organic affection: such are the condition of the reflexes, the trophic condition of the muscles, electrical reactions, condition of the joints, skiagrams, etc. A test of the reflexes under chloroform anæsthesia should also be made on the lines suggested by Babinski and Froment; asymmetrical accentuation, disappearance and especially asymmetrical reappearance of the tendon reflexes, particularly the reflex nearest to the affected joint, clinch the diagnosis in favour of an organic lesion according to the above authorities.

This can only be done by repeated examinations, and it is only when all possibility of organic mischief has been excluded that one is justified in making the diagnosis of habit-limping.

Lastly, it must not be forgotten that these conditions, when prolonged for a certain length of time, may, like neuropathic paralyses and contractures, engender organic changes such as shortening of tendons, limitation of articular movement and arthritis, which will prove more or less intractable.

CHAPTER III

TREMORS, TICS AND CHOREIFORM MOVEMENTS

THOUGH the nervous disorders studied in this chapter are among the less important of the psychoneuroses of war compared with those already described, yet they are by no means rare.

Since the commencement of the campaign many soldiers exhibiting these affections as a result of shock or injury have been treated in the various neurological departments at the front and in the interior; in many of them the condition has persisted for a long time. The long duration of these disorders has led to the question being raised by Babinski at the Paris Neurological Society as to whether a certain proportion of these tremors should not be included in the category of organic diseases and placed beside the major affections of the nervous system characterized by tremors and based on] a central lesion.

In order of frequency, we shall first discuss tremors, then spasmodic tic and choreiform movements.

The conditions under which the symptoms appear are much the same in all; they will therefore be taken together.

Sometimes it is a young soldier arriving at the firing-line for the first time; at other times it is a soldier already hardened to the campaign and who has been under a violent bombardment in some specially hard-fought action.

In some cases these patients will be found [to

be particularly nervous, emotional individuals with previous neuropathic traits; but more commonly tremor or tic will appear in soldiers previously quite sound, without any neuropathic or psychical history.

We only mention these questions of etiology in passing, as they are discussed more fully in a later chapter dealing with the general etiology of the psychoneuroses of war (p. 152).

We must signalize one important and unexpected fact: the rarity of immediate, direct contagion. In our own personal observations and in those recorded by other writers, there are records of several soldiers in the same section or company simultaneously affected by tremors, tic, or choreiform movements; but though these instances exist, they appear to be exceptional.

These patients are, in the immense majority of cases, isolated examples. The disorder appears as a sequel to nervous shock, following a shell explosion. In rarer instances, it has followed some slight wound by a bullet or shrapnel; or it has been of spontaneous origin after fatigue, exposure to cold, or a rigor (a case of our own coming within the last class).

Their **Onset** is somewhat variable. It is generally *early*. A man is in a trench, at a listening-post, in a communication-trench or a rest-billet, and is submitted to the explosion of a projectile at short range, such as an aerial torpedo, a mine, or large-calibre shell. He is thrown into the air, falls to the ground or is deeply buried with some of his comrades and loses consciousness. When he comes to himself at the field ambulance or casualty clearing-station, he is seized with a tremor or clonic movements. More rarely, the symptoms appear without previous loss of consciousness, immediately after the explosion, at the moment when the man rises or attempts to do so.

In certain cases the clonic movements are accompanied by other concussion disorders, the commonest of which is deaf-mutism.

PLATE VIII.



FIG. 1.—Contracture of the right knee of eighteen months' duration.



FIG. 2.—The same patient cured after one séance of treatment.



FIG. 3.—Neuopathic scoliosis, following a slight wound in the right flank.



FIG. 4.
Clonic tic of the left shoulder.

Occasionally it is of *late* onset ; the symptoms only appear after a lapse of some hours or days after the trauma (*phase de méditation* of Charcot). It may be that the patient only commences to tremble when he leaves his bed with his injuries healed. In the latter case there is some reminiscence of the previous shock : *retrospective emotion*.

VARIOUS CLINICAL TYPES.—We shall study these in order :

(a) The tremors, including the various choreiform movements.

(b) The tics.

§ 1. THE TREMORS

These may be divided into two classes according to their clinical types :

Atypical tremors, consisting of disorderly, irregular movements not resembling in their behaviour or course any tremors accompanying known maladies.

Typical tremors, which more or less resemble those seen in those nervous diseases which are accompanied by tremor.

The former seem to be entirely conceived by the individual, who appears to determine as he wishes their form and manner of appearance.

The latter, on the other hand, appear to be imitative.

The **Atypical Tremors** are sometimes generalized, affecting all the body muscles and sometimes limited to a limb or part of a limb.

(1) When *generalized*, they are usually associated with other symptoms as a part of the clinical picture of the “shell-shock syndrome.”

The facial expression seems to portray indescribable terror, and shares in the disorderly and irregular movements of the whole body. The tremor has been justly considered (Ballet) as the “expression mimicking fear.” There are also circulatory

disturbances (tachycardia, flushing or pallor of the face), secretory changes (perspiratory, lacrymal, small salivary secretion, discharge of urine), all of which with the tremor are manifestations of the emotion (Henry Meige).

In the generalized tremors the patient is shaken by vibratory oscillations of variable intensity, sometimes fine and limited to the extremities, more often wide and irregular; in the latter there are extreme oscillations of the limbs reminiscent of chorea gravis, accompanied by clonic movements of the muscles of the face and neck. The patient cannot stand upright nor walk and has to be carried on a stretcher. On the slightest touch or examination (testing the reflexes, raising the bedclothes, or even the arrival of the doctor on the scene), these illogical and paradoxical movements become more violent and sometimes reach a surprising intensity. Any sudden noise, such as slamming the door, or particularly the sound of cannon, distant though it may be, may determine the occurrence of paroxysmal crises.

In one case in our hospital at Villejuif (February, 1915) presenting all the classical signs of Charcot's "*grande névrose trémulante*" following on the explosion of a shell, the paroxysmal aggravation of the tremor was particularly well marked. Every morning, on the arrival of the physician in the ward, the patient exhibited a pronounced accentuation of the tremor lasting several minutes, accompanied by dyspnoëic symptoms. This gradually passed off, and the amplitude and intensity of the tremor regained its former level.

In one of Meige's patients, a sudden noise, sharp explosion, or visit to the trenches would bring on real motor crises with wide and generalized tremor so severe as to cause loss of equilibrium; then this severe shaking would subside gradually and the tremor regain its normal intensity. Ordinary testing of the reflexes was equally effective in causing this exacerbation.

In these paroxysms it is not, properly speaking, a question of tremor, but rather of sudden trepidation (Henry Meige): "The motor reaction which they represent is due to a brusque contraction of all the flexor muscles. The arms are closely applied to the chest, the forearms are bent on the arms, the fingers close up, the thighs flex on the trunk and the legs on the thighs. The trunk is bent forwards with few exceptions; the shoulders are raised and the head lowered. The facial muscles also share in this abrupt contraction; the eyelids close, the teeth are closely approximated, and the lips are pressed tightly together. In brief, the individual responds to the emotional shock by a reflex action of generalized defence which has the effect of hunching up the body and reducing its surface to a minimum. This phenomenon of retraction is seen in every scale of animal life from the amoeba upwards, when sudden danger is imminent. It is followed by a more or less abrupt and complete relaxation. It is sometimes repeated several times in succession with first increasing, then decreasing intensity."

Lastly, in certain cases one frequently finds a distinct psychopathic condition, which Henry Meige has analysed and described under the name of *tremophobia* (fear of tremor). This is not rare in patients who exhibit tremor of the head or limbs. "Tremophobia partakes of all the characteristics of an obsession; it is similar to the creutophobia (fear of blushing) of Pitres and Régis. It is seen in individuals with predisposition, especially those of generally unhealthy constitution. Blushing and tremor are, indeed, only reflex manifestations of the emotional condition. Just as the blushing of creutophobia increases parallel with the fear, so the tremor of tremophobia is augmented by the fear of tremor. The physical phenomenon produces the obsession which, in its turn, increases the somatic reaction; the exaggeration of the latter again reacts on the mental disorder; thus a vicious circle of reciprocal

psycho-physical reactions is established, ending in a true obsessional disease" (Henry Meige).

(2) When *limited*, they are confined to the upper or lower limbs on one or both sides or to part of a limb.

The **Typical Tremors** resemble, either by the actual character of the tremor or by associated signs, the definite tremorous disorders which are well known and classified in neuropathology. In distinction to the first group (atypical tremors), which may be considered as products of the individual's own imagination, these typical tremors seem to be imitative, of course more or less unconsciously, except in cases of real malingering.

They may appear in various forms :

The pseudo-Parkinsonian type, in which the tremor is generalized, rapid, and regular, and predominates in the extremities, especially in the arms. The resemblance to Paralysis Agitans is sometimes so close that the two may be confused on the first examination and the diagnosis has to be gone into very fully.

Sometimes this form of tremor is localized to a part of the body only or to a single limb (hemi-Parkinsonian type).

The disseminated sclerosis type, in which the oscillations are of greater amplitude than in the preceding form. They are much accelerated by voluntary movements, and especially when the hand reaches out to grasp some object. However, the resemblance to disseminated sclerosis is only remote and will not bear careful examination.

In other and rarer cases the fine, rapid tremor, localized in the extremities, may resemble that of exophthalmic goitre, that of progressive general paralysis, or that of toxic (alcoholic) tremor, etc.

When the character of the tremor resembles that of exophthalmic goitre, and when, in addition, there is slight acceleration of the pulse-rate (sometimes of

emotional origin), the distinction between this condition and the abortive forms of Graves' Disease becomes extremely difficult to draw.

The important part attributed to emotion and physical or mental shock of every kind in the pathogenesis of exophthalmic goitre has long been fully described in the literature. Instances which apparently confirm this idea have been observed and published ever since the commencement of the campaign.

In our opinion, this pathogenesis is far from proven and most of the observations on the subject deserve careful scrutiny. Without wishing to labour the point, we will only say that we have not seen a single case of Graves' Disease in which close investigation has clearly established a definite connection between the trauma or emotional shock and the actual onset of the symptoms. It appears more logical to suppose that, as in many other affections of unknown pathogenesis but indisputable organic nature, the emotion or trauma only plays the part of bringing to light a latent disorder, just as a blow on the knee or hip reveals for the first time a swelling or hip-disease.

This question of the causal connection between trauma and certain pathological conditions (tubercle, syphilis, etc.) has a wide and practical importance at the present time ; in so far as it concerns nervous diseases it merits detailed consideration.

In the *pseudo-cerebellar type* the irregular movements of walking, imperfect equilibrium and ataxia more or less resemble the cerebellar syndrome.

Pseudo-choreiform types.—These are far from rare, and resemble the different clinical aspects of the various forms of chorea :—chorea gravis, with irregular movements of all the limbs, the head, the neck and also the facial muscles : Sydenham's chorea and rhythmical or saltatory chorea. All these types are specially characterized by affections of the gait. They are described in detail in the chapter dealing with this subject (p. 41).

§ 2. THE TICS

Tonic tic (postural tic of Meige and Feindel) may be observed as a result of wounds or nervous shock in war ; but it is much less common than the clonic tics or spasmodic movements which make their appearance under the same conditions as the tremors, *i.e.* after nervous shock, the result of explosion of a shell near at hand or at a distance. Like the tremors, they easily and quickly yield to psychotherapy when treated at a time as near as possible to their onset.

They are usually observed in and around the head : *e.g.* clonic contractions of the neck (sterno-mastoid, trapezius, platysma) or of the head, movements of affirmation or negation, palpebral or facial spasms on one or both sides or movements of elevation of one or both shoulders.

Evolution and Prognosis.—The evolution, duration and termination of these phenomena—as in all the psychoneuroses—are so variable that we cannot give any general description either of their evolution or prognosis. They are cases which show great variation according to the course pursued during their successive transference from one to another of the various hospitals and institutions.

Though we sometimes have to deal with old cases in which after long disappearance of the tic, this has again come to light owing to the fatigue or the emotions of the campaign, we more often come across these symptoms appearing for the first time.

In exceptional cases the affection may be improved or even disappear after a simple period of rest behind the lines ; but the majority of these cases of tremor or clonic movements, when left to themselves, seem to persist almost indefinitely. We know of many instances in the general hospitals, the special departments and elsewhere, in which a tremor has persisted for many months, often over a year ; there are patients who have had a tremor ever since the

battle of the Marne. Everything depends on the time of treatment and the way in which they are interpreted by the physician who examines them.

With regard to **Relapses**, we cannot at present make any definite statement. The observations published by various authors, ourselves included, are necessarily incomplete on account of the impossibility of following up the cases for a sufficient length of time.

In any case, it is certain that substantial reservations must be made in these individuals as regards their future fitness for military service. If the affection has suddenly appeared in a man previously sound and has rapidly disappeared under treatment, one may justifiably consider the cure as likely to be permanent and expect the soldier to be able to take his place in the trenches after a certain period of rest. If, on the other hand, we are dealing with a particularly nervous, emotional individual with a previous history of other neuropathic symptoms, the prognosis as regards his military usefulness in the front-line is poor.

The **Nature** of these affections, especially that of the tremors, has been much discussed.

At a recent meeting of the Paris Neurological Society, Babinski, in his paper on "The Character and Methods of Dealing with the So-called Functional Motor Disorders," raised the following point for discussion :

"In the neurology of the war, many cases of tremor have been observed, often following shell-shock. They present none of the characteristics which belong to those organic affections with symptoms of tremor, and, moreover, are uninfluenced by psychotherapy. Some of the members of the Society have specially studied these tremors and may be able to specify their nature and the methods which should be adopted in dealing with them."

Henry Meige was of opinion that they might be of emotional or concussion origin. Emotional

tremor—the manifestation of the emotion—is signalized by oscillations very variable in frequency and amplitude. . . . Generally transitory, and disappearing with the other elements of the emotional syndrome, it may persist for a long time and even become permanent. In this case it must be admitted that some organic disturbance has been produced under the sole influence of the emotional shock. The intractability of the symptoms, their resistance to all treatment and every psycho-therapeutic method, confirms this standpoint.

In the concussion tremors, another factor is at work. The explosion acts mechanically by the disturbance and sudden change of pressure which it produces, not to mention the fact that the individual is violently thrown to the ground against a resistant body. This variety of tremor may thus very well depend on an organic lesion and seems to arise from a definite disturbance of the nervous apparatus.

Guillain also upheld this view of their pathogenesis.

We find it difficult to conceive of these tremors following nervous shock after an explosion being produced by an organic lesion.

We find a proof of our standpoint in the cure which is possible by means of the psycho-therapeutic measures employed at the correct time; this cure is often rapid or immediate and lasting.

Though the fact that a nervous disorder yields rapidly or immediately to psychotherapy is an undeniable proof that it is not of organic nature, the reverse is not necessarily true. It is incorrect to ascribe the incurability of certain nervous manifestations to the supposition that they are caused by an organic lesion of the central nervous system. Is not the persistence of some pithiatic or hysterical disorders a fact known to all? And in the large Parisian hospitals (Bicetre or Salpêtrière) one can find patients with indisputable hysterical affections, long-standing though they may be, the nature of which is obvious to all.

Although therapeutic measures here prove unsatisfactory and though the prognosis of the tremors and tics is the most unfavourable, are these sufficient reasons for considering them of an organic nature, fit cases for discharge from the army? We think not, seeing that we have seen cases of our own, since sent back to active service, which have proved ultimately curable.

Differential Diagnosis.—The diagnosis of tremor and tic due to nervous shock raises the general question of the diagnosis of the classical nervous affections, on which we cannot dwell. A few rudimentary facts, culled from observations made during the war, merit consideration. In the differential diagnosis, importance must be attached to the following characteristics:

(1) *The Mode of Onset*, always or nearly always rapid and sudden, more or less directly connected with a nervous shock, an emotion, or the explosion of a projectile without external wound.

(2) *The General Character of the Abnormal Movements or Tremor*, which are generally arrhythmical and irregular in their intensity and development, usually exaggerated by voluntary movements (intention-tremor). As Meige states, the latter point is of little value. An important point is that the tremors, especially those of the limbs, are accompanied by a *permanent* contraction of the groups of muscles concerned: a contracture of the muscles of the neck in tremor of the head, contracture of the wrist and elbow in tremor of the upper extremity, etc. When during the course of treatment these contractures disappear for a few moments, the tremor quickly ceases. Thus when carrying out therapeutic measures, care must always be taken to obtain complete muscular relaxation by getting the patient to open the mouth and breathe deeply.

(3) *Associated or Accessory Symptoms*, of somatic or psychological order, are of great service in diag-

nosis; such are disproportionate efforts, manifestations of dyspnoea and emotional signs which may accompany interrogation or the first attempts at treatment, viz., passive movements of a contracted limb.

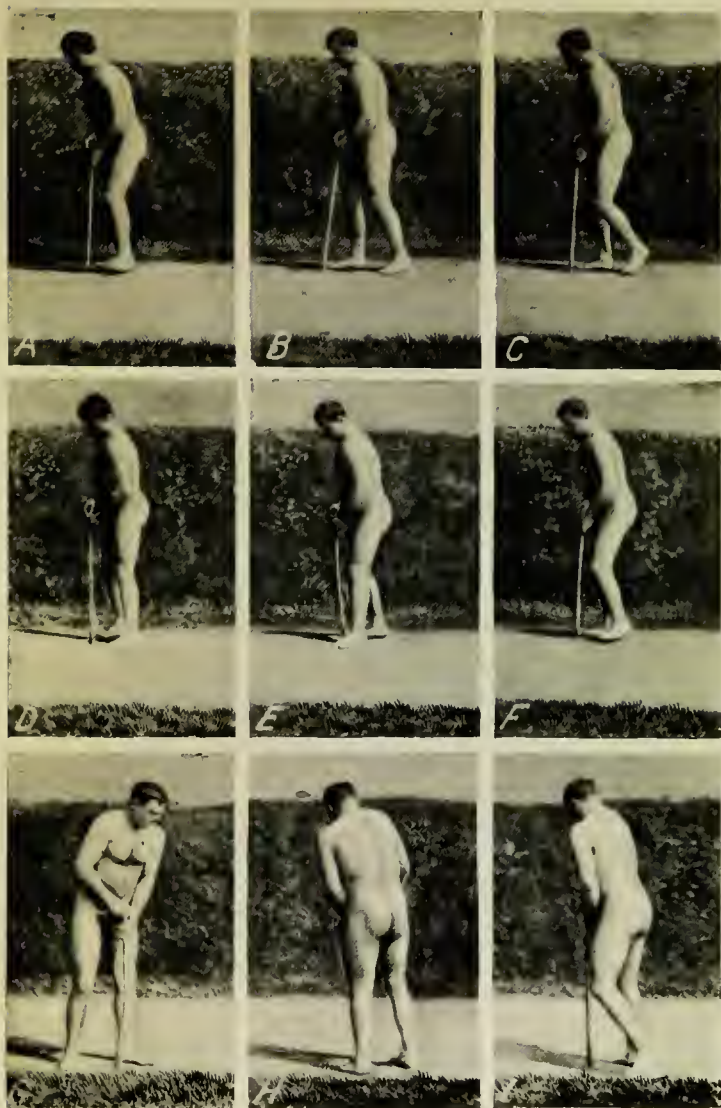
(4) The characteristic *Psychical Condition* of these patients, which causes them to attach too great importance to the disorder from which they are suffering; also the fact that they try, from the commencement of the examination, to distract the attention of the physician, to lead him along a false track by talking about subjective symptoms other than those for which they were sent to hospital; this renders the examination difficult, as these patients are usually loquacious. Frequently these first psychological impressions give the physician a clue to the diagnosis and indicate fairly clearly the true nature of the affection.

(5) *The Absence of any Somatic Sign* in respect of the cutaneous or tendon reflexes, i.e. the absence of any real modification such as abolition or exaggeration with epileptiform trepidation, showing a disturbance of the reflex arc. One too often finds that a physician not specially trained in neurology will attach importance to a certain degree of briskness of the tendon reflexes: "exaggerated reflexes, plantar hyperæsthesia" is often found on the case-sheets, signs which simply indicate a nervous excitability common in neuropathic subjects. Needless to say, such statements have a bad effect on the patient.

It is hardly necessary to mention that under no circumstances must a search for supposed stigmata of past hysteria be made, for this might entail the establishment of fresh neuropathic manifestations in patients so extremely sensitive to suggestion.

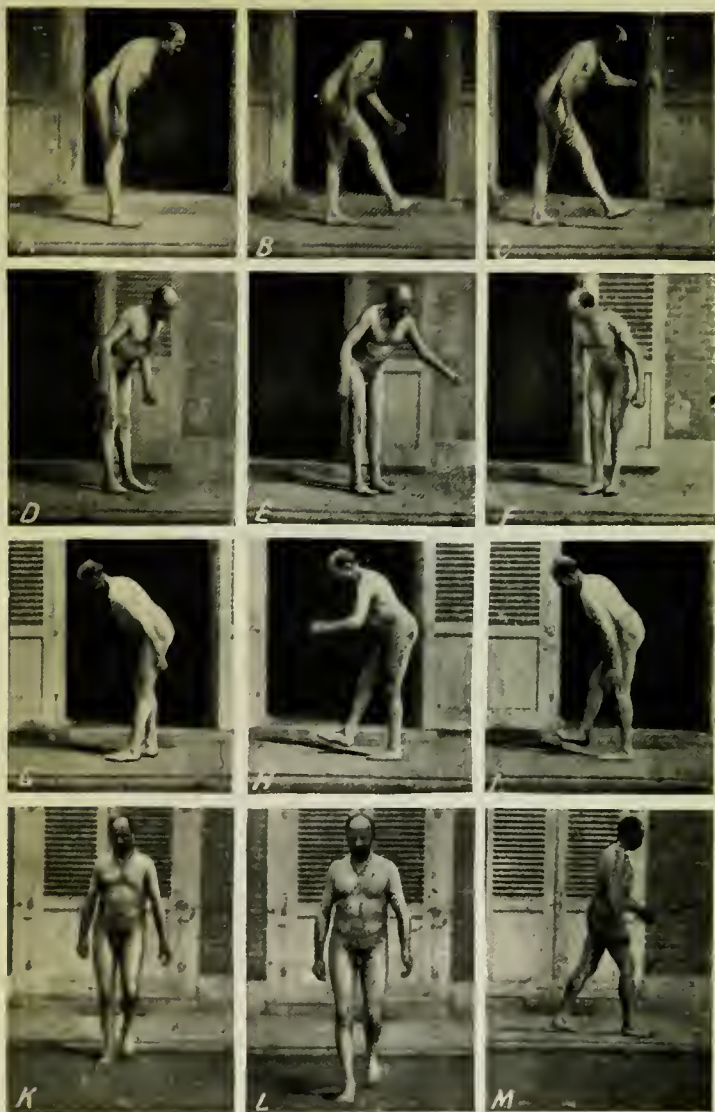
(6) *The Rapid or Immediate Curability* of the morbid condition, lastly, is of great value in differential diagnosis. Every case of tremor, tic, or choreiform movement which yields to psychotherapy

PLATE IX.



A-I.—Psychoneurotic disturbances of the gait: type seen in hip-disease.
Tripod-walk.

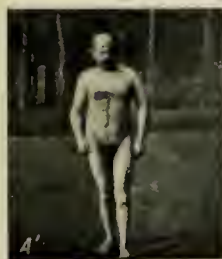
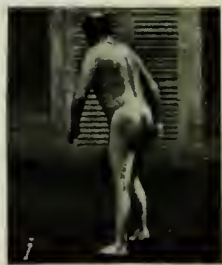
PLATE X.



A.-I.—Psychoneurotic disturbances of the gait with “ bent back ” of three weeks' duration.

G., K.-M.—The same patient, after one séance of psycho-electrical treatment, cured,

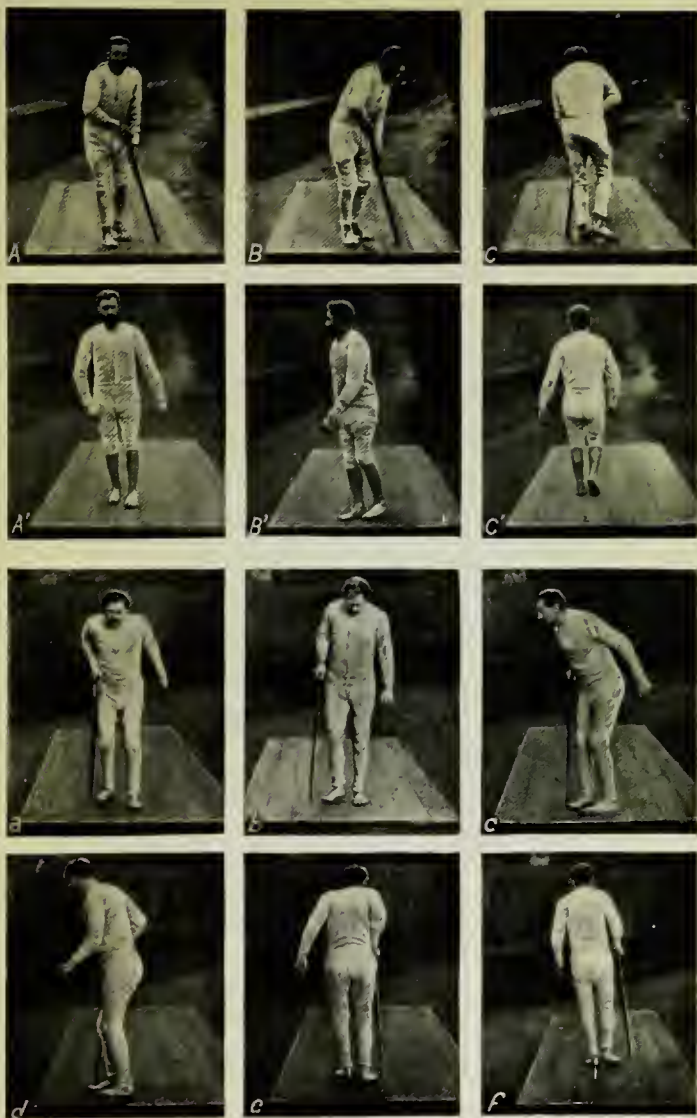
PLATE XI.



A.-I.—Functional paraplegia, spasmodic type, with slight camptocormia.
A', B', C'.—Cured.



PLATE XII.



A, B, C.—False sciatica (right side) of several months' duration.

A', B', C'.—The same patient four days later, cured.

A-F.—Functional monoplegia (right), following sciatica.

PLATE XIII.



A-I.—Prolonged claudication due to false sciatica (left).

must be considered as a functional, hysterical affection.

These few points should always be borne in mind by the physician called to examine a psychoneurotic patient. They will help to reveal organic affections with tremor which, though rare in the neurology of war, may be met with. One may discover cases of family tremor which have accidentally been passed into the army, cases of true Sydenham's chorea in the younger soldiers or organic affections such as disseminated sclerosis or a cerebellar syndrome coming to light spontaneously during the course of the campaign. But in these cases the etiology is different, and the disorder only exceptionally follows a nervous shock due to explosion of a projectile. As a rule, the disease appears spontaneously. The general symptomatology of these conditions will enable them to be recognized, given a certain practical knowledge of neurology.

We have intentionally refrained from mentioning affections due to pure malingering, this question having been discussed in a separate chapter.

CHAPTER IV

PSYCHICAL DISTURBANCES OF SENSATION

THESE occupy an important place amongst the psycho-neurotic manifestations of war, both owing to their frequency and duration and to the functional impotence which they produce.

They may be divided into two main groups, according to the degree of frequency :

(1) *Psychopathic pains* or "*algias*," subjective disorders of sensation which are extremely important owing to their common occurrence, duration and practical consequences from a military point of view.

(2) *The Anæsthesias* or objective disorders of sensation are much less important both from a semiological and practical standpoint.

§ 1. THE "ALGIAS"

Frequency.—These are very common. A large number of soldiers of all ages and conditions are found in the hospitals, field-ambulances, or orthopædic institutions, or are treated in the interior for pain and functional disturbance of a purely neuropathic character. Fortunately, since the Military Neurological Congress held at Doullens in January 1916 and owing to the work of the Under-Secretary of State and the Director-General of the Medical Services, a more effective method of filtration for these cases has been organized in the army.

To make ourselves quite clear, let us say that under the term *psycho-neuropathic pain* we include every pain, with or without loss of power, which

on clinical grounds or for therapeutic reasons, for example, cure by psychotherapy, does not appear to be caused by an organic lesion.

Of all the varieties of pain observed, that localized in the lower limbs and causing claudication is the most common. It produces the most rapid and certain demobilization and return to the field-ambulance, casualty clearing-station, or base hospital of the individual in question. It is also the most easily simulated and the most difficult to control.

The Causes are variable. They sometimes appear to arise spontaneously without any apparent cause, or follow some very slight disorder such as a minor attack of rheumatism, a febrile condition or some infection. They more often have some definite causal condition, *e.g.* :

(a) Any form of trauma, shock, blow from the butt of a rifle, fall from a motor-cycle, or temporary burial in a collapsed trench, without any external sign of injury being observed.

(b) A slight gunshot, shell, or shrapnel wound, a small foreign body left for a time in the superficial tissues, shown by skiagrams, and to which the patient's attention has been specially directed.

(c) Some previous organic lesion, long since cured : patients who have had true organic sciatica, slight rheumatoid arthritis of the hip-joint, knee, or foot, rheumatoid or traumatic lumbago.

(d) Lastly, more severe lesions such as frost-bitten feet and "neuritis," which threaten to persist indefinitely if there is no intervention of a radical nature at the right time (G. Roussy and R. Leroux).

The previous condition of the patient appears to be of little importance. These affections may come on at any age, being seen both in soldiers of the younger classes and in the older men on home service ; they are found in individuals without

previous neuropathic taint and in predisposed and alcoholic subjects.

The Clinical Types show infinite variation, but in general they reproduce the classical syndromes in which pain is the important factor. These may be vicious antalgic postures such as curvature or scoliosis, or functional impotence as seen in the various forms of claudication. They may take the form of more or less severe pain without apparent deformity, but localized in clearly defined regions to which the patient constantly directs attention (hysterical or neurasthenic topo-algias). Lastly, they may be cases of various visceral pains—gastric, vesical, renal, etc.—the diagnosis of which is often far from simple.

Thus it is difficult to give a general description of the clinical aspect of a varied selection of pains such as are of almost daily observation in the military neurological services.

In order to adopt some general scheme for such a vast group, we will adopt the following classification :

(1) *Algias of the lower limbs* (quite the most frequent).

(2) *Algias of the upper limbs* (rarer).

(3) *Algias of the trunk and spine* (not uncommon).

(4) *Algias of the neck and head, severe headache.*

(5) *Visceral algias.*

PSYCHO-NEUROPATHIC ALGIAS IN THE LOWER EXTREMITIES.—The number of these is so considerable that it is no exaggeration to say that there are very few specialized or non-specialized departments, orthopædic or convalescent institutions, where there are not a few soldiers suffering from pain of a purely pithiatic nature.

Although hardly systematic, but nevertheless useful from the point of view of differential diagnosis, we may arrange them in three principal groups according to their resemblance to some painful organic affection of the lower extremities.

Pseudo-Sciatic Type (Roussy and Grutzhaendler).—This is the hysterical sciatica of the classical authors and is of great frequency.

The *Onset* of these false sciaticas is only occasionally spontaneous. They sometimes appear as the result of a trauma—a blow on the knee or leg, slight superficial wound, etc.—and entirely resemble the general type of hysterо-traumatic disorders. But more frequently it is after more or less vague discomfort of a rheumatic or rheumatoid nature in one or both limbs that these pains make their appearance and cause limping and complaints of pain, lasting weeks or months. A slight organic lesion or sciatica coming on at regular intervals is the common ground on which these psycho-neuropathic symptoms take root. These psychical affections may sometimes appear quite genuine, unconscious, sometimes subconscious or exaggerated (re-exaggerated sciatica) or prolonged (prolongation of sciatica, with habit-claudication), or even wholly created for some easily discernible object (simulated sciatica). But we must humbly own that the physician himself often plays a part in the appearance and fixation of these affections; for the mistaken diagnoses written up in the case-sheets, suggestions for change of military status, and the many external stimuli around the patient only reinforce the ideas they have of their disorder.

The distinction between these three conditions—real psychical disorders, exaggeration and simulation—is often difficult and sometimes impossible to draw; only such proofs as confession or flagrant mistakes in conduct will justify the conclusion that a pain or functional impotence is simply a case of malingering.

The Clinical Aspect of patients with false sciatica is sometimes so similar to that of true sciatica as to be mistaken for it. These are individuals with pain in one leg, occasionally but rarely in both, and who limp. We must therefore discuss the diagnostic value of the pain and its result—the claudication.

(1) *The pain* gives little information as regards

the diagnosis, as its verification is difficult. The patient complains of pain along the distribution of the sciatic nerve, in the buttock, thigh, or leg, often also around the sacro-iliac synchondrosis. Deep pressure (Valleix) evokes or seems to evoke the pain. It is sometimes very acute, preventing sleep; Lasègue's and Bonnet's signs are positive, but in this connection one must take into consideration the degree of education created in the patient as a result of the many examinations that have been made. Sometimes, however, the site of the pain is more paradoxical. The patient complains of pain in a diffuse form in the groin, the lower part of the thigh, the knee or lumbar region. Such indications point in favour of false sciatica. Objective disturbances of sensation are much more common than in organic sciatica. One may find anæsthesia of the "hysterical type" in large bands or patches, sometimes affecting the whole of the lower extremity (signs in favour of a pseudo-algia). In rarer instances, there are parallel bands of hypæsthesia or anæsthesia more or less resembling the distribution of a nerve-root. Lastly, it may take the form of hyperæsthesia of the skin in the lumbar region, thigh, or sole, intensified by walking. All these objective disturbances of sensation may, we think, be explained by previous medical examinations. If tests of sensation are carried out by Babinski's method (p. 84), one never discovers these disorders of sensation in patients who have not undergone complete examination; and in those cases that do exhibit them they are always found to disappear on the application of the faradic current.

(2) *Claudication* in patients suffering from false sciatica is often very pronounced, usually more so than in true sciatica. Progression is effected by hopping along with the lower limb maintained contracted either in extension or flexion. The patient gets along with both hands holding on to a stick, which he holds in front of him and at each step he

presses the handle against the abdomen (tripod-gait). As a rule it is only the point of the foot or the toes alone which touch the ground, or the foot may lie flat but the toes are maintained in dorsal hyperflexion.

Running is naturally impossible, the patient refusing to attempt it. In the standing position the patient holds himself hunched up on the sound limb and resists all attempts to correct this attitude; thus the gluteal fold on the affected side is diminished or obliterated and the natal cleft is deviated from the affected limb. In other cases more unusual postures are adopted: the trunk bent forwards or laterally from the healthy side, pelvis tilted to the affected side with false shortening of the limb and compensatory scoliosis of various types.

During attempts to separate the thighs, one can nearly always observe a contracture of the adductors, for which there is no reason. These patients resist all attempts at passive movement of the painful and often contracted limb, both those which entail stretching of the sciatic nerve and those which make for its relaxation. At this point of the examination there appear certain signs almost always observed in the psychoneuroses:—dyspnoea and contraction of the diaphragm (efforts which ought to invoke the pain), screaming and shouting, an outburst of weeping or a true convulsive attack. When the patient, lying down, is told to get up quickly, one may observe in the less severe cases that he raises himself upon the painful limb just as well as on the unaffected.

All the somatic signs of true sciatica will be completely absent: all the cutaneous and tendon reflexes are normal. They are occasionally rather brisker than on the normal side; there is no hypotonicity. A diffuse muscular atrophy is occasionally observed in cases of very long duration and certain vasomotor symptoms (cyanosis, excessive sweating); these can be explained by the prolonged immobilization.

Such are the clinical signs which must be used to distinguish false sciatica. The differential diagnosis is sometimes admittedly difficult; to decide in the case of a patient who is stated to have had at one time true sciatica, which are the true symptoms and which are simply superadded or exaggerated is often no easy task. Be this as it may, it seems that in case of doubt it is always preferable to decide in favour of false sciatica and to treat it as such: psychotherapeutic measures, if not successful, will at any rate afford the clue to the diagnosis.

Pseudo-coxalgic Type (Roussy and Grutzhaendler). —This is the hysterical “coxalgia” of the literature, and is almost as common as the last variety. In these cases it is around the hip and the hip alone that the pain is localized. The claudication resembles that of hip-disease. The limb is drawn up, the knee in extension or partial flexion. At every step the trunk is bent sharply forwards on the affected side. When walking, the movements of flexion and extension at the hip-joint are limited or absent. When an attempt is made to passively move the joint, defensive contractions are observed; sometimes one is able to take the patient by surprise by making a movement opposite to that which we wish to obtain:—extension of the thigh on the pelvis when an attempt is being made to flex it. Signs of shortening, of pain produced by percussing the knee with the leg in extension, external rotation—all these may be present as in true hip-disease. Thus the diagnosis is sometimes a matter of great difficulty, and a surgeon has to be called in to make a thorough examination of the joint, for which an anæsthetic is often necessary or else a skiagram has to be taken.

The therapeutic criterion—cure by psychotherapy—has the greatest value.

The Pseudo-cruritic Type is much less common. It generally takes the form of a contracture at the

hip-joint and is mistaken for crural neuralgia or the onset of hip-disease.

The same considerations hold in **pseudo-arthritis** of the other joints of the lower limb—of the knee (*gonalgia*), of the instep (*tarsalgia*), or of the heel (*pseudo-talalgia*), which are often labelled sciatica.

All these also produce claudication, often in a marked degree; their differential diagnosis entails the same methods of examination as in cases of coxo-femoral arthritis.

Pseudo-neuritic Type.—Under this heading we include the various pains, localized in one or both limbs, following an infectious disease or a simple gastric disturbance. These are accompanied by vague discomfort, and have been put down as due to "neuritis" of the lower limbs.

Now, influenced by this diagnosis, the patients will often continue to complain of pain in the limbs for a great length of time. In this way disorders of the gait are caused without the observer being able to discover a single sign indicating the existence of any actual neuritic lesion.

We can include in this group a large number of disturbances of the gait due to so-called neuritis following on frost-bite (Roussy and Leroux).

This usually happens in the case of soldiers sent back from the regiment or from an orthopædic institution to hospital, with the following diagnoses: nervous symptoms, neuritis or neuritic phenomena, œdema, hyperæsthesia, following on previous frost-bite of the feet. The original cause (frost-bite) generally dates back several months, often over a year.

The clinical symptoms consist of disturbances of the gait: more or less unusual limping caused by a paradoxical vicious posture of one or both of the feet, sometimes even of the legs, with pain which necessitates the retention in or return to hospital of these patients.

On examination, one or both of the feet will be found in a vicious posture, sometimes permanent and sometimes only existing when the patient walks. He does this on the external border of the foot, chiefly on the heel, the toes dorsally flexed or the foot even in true equino-varus position. This is the chief sign and the one which immediately attracts attention.

On closer observation vaso-motor changes are observed—bright purplish colour of the skin of the foot, prolonged pallor after pressure on one spot, lowering of temperature of the skin (2° - 3°) reaching a certain distance up the leg, and sweating. It must be noticed that it is a question of segments of the limb long immobilized. These vaso-motor phenomena are far from common, we may even say rare. The same can be said of œdema, which, although figuring on the case-sheet, is often transitory, hardly perceptible, or absent. The patients themselves, however, make a good deal of this symptom, which is barely obvious to the naked eye.

One other important feature makes the clinical picture complete: this is the presence of pain—spontaneous or occasioned by walking. This may be acute and described as burning or pricking, or sometimes only consisting of simple hyperæsthesia of the sole of the foot. These aches and pains last for weeks or months; they render walking well-nigh impossible (pronounced lameness, walking with a stick or a crutch). They cause and maintain the vicious posture.

Now, in cases of this nature, a minute examination shows that there are no organic disorders at work sufficiently pronounced to justify such functional incapacity. There is no evidence whatever which could point at this time to any lesion of the peripheral nerves or the vessels. On the other hand, all cases of such pain and vicious posture yield extremely rapidly and in a most surprising manner to psychotherapeutic and electrical methods undertaken from the time of the patient's admission. Further, as the

patient regains the normal use of his feet or his contracted and painful limbs, the œdema and the vasomotor or thermal disturbances will disappear *pari passu* with the vicious posture.

ALGIAS OF THE UPPER EXTREMITIES.—These are much less common than the last group. This is easily understood, given the lesser degree of functional impotence of which they are capable. They are usually unilateral, and only exceptionally bilateral.

Like those of the lower limbs, the pains may resemble either neuritic or articular pain.

In the **pseudo-neuritic** form the pain is vague and diffused over the limb or a segment of it, occasionally localized to the distribution of a large nerve trunk, and has originated in a shock, a superficial wound, or it may be of quasi-spontaneous origin. The patient gives little precise information as to its nature, intensity and distribution, but chiefly dwells on the impossibility he experiences of carrying his rifle, lifting a weight, or bearing his kit.

What is more frequently seen, especially in men on home-service, is the amplification of some real pain, in the distribution of the median or ulnar nerve for example, a manifestation in which exaggeration seems to take a considerable share.

These pains may exist alone or quickly become accompanied by other hysterical disorders—anæsthesia or functional loss of power due to paralysis or contracture.

In the **pseudo-arthritic** form—rare in the elbow and wrist but common in the shoulder—very much the same clinical picture is found as in articular pain in the lower limbs. The patient has had pain for some months around the joint, which he immobilizes more or less completely, often even resisting all attempts at examination.

Especially in the case of the shoulder-joint, differ-

ential diagnosis is often very difficult and necessitates thorough examination (under an anæsthetic, or by skiagrams); this the more, as pithiatic phenomena are often grafted onto an organic condition—dry arthritis, peri-arthritis, etc. The therapeutic measures still in common use, the faulty diagnoses written up on the case-sheets, the psychical condition of the patient, surrounded by possible sources of “infection,” all rapidly make for the fixation of the pain.

ALGIAS OF THE TRUNK (spine, thorax, etc.).—Much the most common of these are painful affections of the vertebral column which, in order of frequency, stand next to those of the lower limb. Such are the various forms of pain which engender deformities of the trunk and the vertebral column (scoliosis or curvature).

The **Rhachialgias** of neuropathic order consist of vague pains, generalized throughout a region (cervical, dorsal, or lumbar) or localized around one or several of the spinous processes, thus resembling the clinical aspect of Pott's Disease. They rapidly produce deformity and vicious postures which, though at first transitory, inconstant and easily reduced, gradually become permanent and irreducible.

These, then, are at their onset cases of pseudo-spondylitis with the element of pain predominant, spondylitis with affections of the gait, impossibility of lying on the back and of moving the vertebral column. The patient walks with a slight forward inclination. He can, however, hold himself upright, though with great difficulty; in all recent cases reduction is easy without using forcible methods.

Some shock, the falling in of a trench, a beam or portion of a dug-out, or the explosion of a shell close at hand has been the origin of the affection, preceding it by a few hours or days. The patient has almost always lost consciousness; he complains of pain in the back as soon as he comes to himself.

Such are the cases which at the commencement of the war were only too often erroneously put down as "hæmatomyelia," "medullary lesion," or "medullary disturbance." However, these patients, in the absence of any grave medullary lesion, when reassured as to their condition, always recover easily and rapidly if one only intervenes in time.

Even in old-standing cases a cure can be obtained, especially if they are sent on to the special Military Neurological Centres.

At a later stage contractures, causing permanent vicious postures, are added to the symptom of pain. The spondylitis is replaced by a pseudo-spondylosis; the symptoms, indeed, correspond to an ankylosis of the vertebral column (scoliosis, kyphosis, lordosis). This is not the case, however. It is the contracture of the spinal muscles which immobilize it, as is proved by skiagrams, examination under anæsthesia and cure by various therapeutic measures. These various types of contracture or camptocormia (Souques) have been described in detail in Chapter I. (p. 25).

The first type—painful spondylitis—representing the early phase of the malady, is seen specially in branches of the medical service at the front, while the second—pseudo-spondylosis—is the form observed in the various neurological centres in the interior, where examples are now to be found in large numbers.

The Lumbalgias or Pseudo-lumbago.—This fairly common form is only a variety of the last condition. It has the same etiology: falling in of a trench, shock, or severe trauma. It has the same clinical aspect: immobilization of the spine in the dorso-lumbar region, with muscular contracture, pain, curvature and disorders of the gait, the patient walking with short, abbreviated steps. It deserves separate consideration on account of its frequency and its resemblance to true traumatic or rheumatoid

lumbago, from which it is often difficult to differentiate. This difficulty is increased by the fact that, as in sciatica, it is often a case of simple prolongation or exaggeration of a painful affection—an organic lesion with a psychical element superadded.

Such cases are transferred to the specialized departments for diagnosis and investigation labelled hystero-traumatism, traumatic lumbago, lumbar pain, etc.

We have still to mention the **Algias of the Thorax**—sharp pain in the side, pleurodynia and false intercostal neuralgia—spontaneous or traumatic, often accompanied by dyspnœa, affections for which no organic cause is revealed by thorough examination of the respiratory apparatus and thoracic wall or by skiagrams. According to our personal experience, they appear rare and are of little importance.

The same holds for the **abdominal algias**—false appendicitis, pain in old hernia scars, etc., which, as psychoneuroses of war, exhibit only the characters described in the classical treatises.

ALGIA OF THE NECK AND HEAD.—Pain in the nape of the neck may be met with. It rarely appears as the sole symptom, but is generally accompanied by spasm of the muscles of the neck—tonic or clonic *torticollis*—which has already been described.

Severe headaches form an important group of the nervous manifestations incidental to the war. But various types have to be distinguished, all of which do not come within the range of the affections with which we are concerned.

(1) *Headache of true hysterical or pithiatic type* appears very exceptional, if we include only under this heading the inorganic affections which are capable of rapid and complete cure by a few séances of psychotherapy.

(2) *Neurasthenic or psychasthenic headache*, on the other hand, is a frequent component of the symptom-

atic picture of neurasthenia. There is no special characteristic as regards the psychoneuroses of war; even when it only exhibits its ordinary degree of persistence, it necessitates prolonged treatment and transference of the patient to one of the hospitals in the interior.

(3) *Headache due to bombardment* is extremely common; it forms some part of the delayed concussion syndrome, and one may safely say that nearly all patients subjected to the explosion of a shell near them suffer from it, sometimes for a long period after the original shock. It is persistent in the occipital or frontal regions, little affected by analgesics; sometimes it is improved by lumbar-puncture, which may reveal slight lymphocytosis and increased pressure. This form of headache hardly comes within our scope, for it appears to depend on an organic change—vascular or in the cerebro-spinal fluid—and is not improved by psychotherapy.

(4) *Headache in patients who have previously been trephined* forms a last, important group owing to its frequency and practical bearing. Pierre Marie has just recently drawn attention to the importance of this sequel of trephining. But here again we have to deal with an affection arising from a previous organic lesion, to which a certain degree of exaggeration or persistence may be superadded.

VISCERAL ALGIAS.—These are fairly rare as true neuropathic or hysterical manifestations following a trauma; they more commonly form part of the neurasthenic or psychasthenic syndrome:—*pain in the testicles* following a wound or castration, *cystalgia* in patients suffering from shock, *gastralgia* accompanied by vomiting in "gastropathic" subjects, *precordial pain and dyspnœa* common in patients who have been exposed to asphyxiating gas.

These are usually accompanied by neuropathic visceral affections which are described in the chapter devoted to this subject (Chapter VIII.).

COURSE AND PROGNOSIS OF THE ALGIAS

The duration of neuropathic pains is extremely variable. Many factors modify their course, such as variations in diagnosis, different methods of treatment, evacuation at the right time or discharge from the army. The war has shown that these pains, like other hysterical symptoms, are conditions in which the patient is to a great extent at the mercy of his surroundings.

Our medical service, therefore, has set itself to make the environment suitable and to segregate into the Special Departments all soldiers who claim to suffer from pain of long duration.

To recognize the real cause of the pain, to determine the extent of psychical factors inducing exaggeration, prolongation, or simulation, to avoid the suggestion of a complaint to these patients but rather to reassure them, to give them, in fine, a motive and an opportunity of recovering—such are the objects all our medical men ought constantly to have in view in dealing with the psychoneuroses of war.

Further, we do not hesitate to affirm that every inorganic, functional pain can be and must be cured (or at any rate ought to be). The question of duration and prognosis thus depends on the diagnosis that is made and the therapeutic measures that are employed.

DIFFERENTIAL DIAGNOSIS OF THE ALGIAS

Diagnosis of these conditions is sometimes a matter of ease, at other times of considerable difficulty.

It is easily established when one has to deal with a patient presenting other signs of a neurotic order, such as convulsive crises, tremor, etc., when the pain is directly associated with trauma or when it appears as a sign of relapse in a patient with a clearly neuropathic history. On the other hand it becomes no easy matter when the pain or its results (functional

impotence) are the first signs observed or the only symptom. Diagnosis becomes increasingly difficult in those cases in which the psychical element is superadded to an organic lesion. It then becomes a question of gradation, degree, and experience.

In discussing the various clinical types, we have endeavoured to lay stress on the signs which assist in differential diagnosis, such, for example, as distinguish the pseudo-sciaticas from true sciatica and pseudo-coxalgia from disease of the hip-joint.

With regard to the diagnostic value of the various symptoms, it must be realized that pain itself is hardly sufficient as a diagnosis. There is, indeed, no positive and certain sign of the pain; and it is impossible to declare that a patient who complains of pain is not really suffering, except, of course, in cases of pure malingering or discovery of intentional deceit.

A basis must therefore be made on a certain number of signs, which, when grouped together and considered comparatively, acquire a real and definite value in diagnosis. The principal are these :—

(1) *Distribution of the Pain.*—It is usually paradoxical in its nature and erratic in its localization, *e.g.* pain in the hand, with complete functional impotence of the entire arm; lack of definite connection between the trauma and the pain, *e.g.* trauma of the left flank causing pseudo-coxalgia of the same side or of the opposite side, etc. These pains do not attack the anatomical distribution of peripheral nerves or nerve plexuses, and are not accompanied by painful areas along the course of the nerve or around the articulation; they are mobile and frequently change their locality. Pressure on a painful area does not produce dilatation of the pupil.

Their results are inconstant, sometimes being shown by slight loss of power or claudication, sometimes by very pronounced motor disturbances. Frequently in the course of a somewhat prolonged examination, or after repeated examinations, they

may be found to vary considerably in intensity from day to day or during a single examination.

(2) *Associated Signs noted during Examination.*—In addition to the symptoms complained of by the patient—the pain and its immediate effects, such as claudication, functional impotence, permanent or transitory vicious postures—there is a whole series of accessory or associated signs which come to light during the examination of the affected limb or region, which often give a clue to the diagnosis. In general they are much the same as those described in the previous chapter dealing with tremors, *i.e.* :—

(a) Respiratory manifestations (the dyspnœa of exertion or emotional dyspnœa) and the resistance shown by the patient to attempts at examination or passive movement. The patients complaining of pain in a limb or a joint make extraordinary efforts to immobilize the limb, efforts which are calculated to increase the pain, though the latter does not occur.

(b) The psychological condition of the patient, who is often uncommunicative, unwilling to look the observer in the face, always ready to turn the conversation, to switch the medical inquiry to other lines which shall not run in the intended direction.

(c) The occurrence of fresh nervous phenomena :—tremor, a modified or real convulsive crisis, an outburst of weeping, sweating, etc.

(3) *The absence of somatic signs* is, of course, of great value : absence of any real modification of the reflexes, of muscular atrophy, ankylosis, vaso-motor disorders and of electrical changes (in quite recent cases or slight motor affections). If, on the other hand, the motor affection has become predominant or permanent, then the prolonged immobilization will produce fibro-tendinous retractions, diffuse amyotrophy, decreased electrical excitability, and vaso-motor symptoms. All these have been described and their diagnostic value discussed in Chapter I.

(4) *Therapeutic tests and their results* are naturally the best criterion. The rapid disappearance of pain of long duration as a result of a single séance or a few séances of psychotherapy proves its neuropathic (inorganic) nature, especially when the cure is acknowledged and admitted by the patient and when it is accompanied by a simultaneous disappearance of the vicious posture or functional loss of power.

Equal diagnostic value is attached to the results of the opposite method of treatment—injections of morphia, cocaine, or stovaine—which cause only slight or no amelioration of the pain and may even increase it.

Lastly, we need hardly say that there should be no hesitation—especially in cases of neuropathic affections combined with an organic element—in resorting on every suitable occasion to positive methods of examination such as lumbar-puncture, examination under X-rays or skiagrams, and examination under chloroform or spinal anæsthesia. Such methods will sometimes reveal, for example, some slight osseous or vertebral lesion which is the origin of all the symptoms; they will always react favourably on the mind of the patient if care is taken to avoid using any imprudent expressions in his hearing.

§ 2. ANÆSTHESIA, ANALGESIA, HYPERÆSTHESIA, ETC.

Modifications of objective sensation are much less important than those of subjective sensation discussed in the preceding section.

Not being perceived by the patient, they produce no loss of function. This is the chief characteristic ascribed by the classical authors to the hysterical anæsthesias, a characteristic which is naturally shared by the psychoneuroses of war.

As they are not obvious to the patient who presents them, but are discovered in the course of examination, the anæsthesias or analgesias of soldiers are not

in themselves a cause of detention in hospital or discharge from military service. They are never a predominant or isolated sign, but are part of a symptomatic picture of functional order : hemiplegia, convulsive crises, tremor, paralysis, etc., during the course of which they may be discovered if they are looked for. The patients do not direct attention to them during the first examination.

This is why we have commenced by saying that the anæsthesias, from a practical standpoint, only occupy a minor position in the neurology of the war.

However, the importance attributed in classical literature to objective disorders of sensation in the neuroses, and especially in hysteria—a view still upheld by most medical men—compels us to discuss the question in some detail.

But to begin with, it is absolutely necessary to decide what diagnostic value should be given to the so-called hysterical anæsthesias and in what sense they should be considered.

We have adopted Babinski's method of testing sensation in all the cases that have come under our observation (Roussy and Boisseau).

He gives the following directions :—The patient, with closed or bandaged eyes, should not be asked to say whether he feels distinctly or less distinctly a touch, prick, or warmth at some point of the body under examination ; he should not be asked to say " yes " or make some sign at each touch or prick, as this will lead to his attention being drawn to the examination. He should be told to point at once with his finger to the site of the prick or touch.

By proceeding along these lines, we have never yet discovered anæsthesia or analgesia in patients who have been subjected to bombardment or in any of the psychoneuroses that had not previously undergone medical examination. Further, we have often failed to find anæsthesia described in the patient's report as having existed some days or weeks

previously. Use has often to be made of counter-suggestion and, while testing the sensibility, of reprimanding any patient who hesitates to make the required indications. Very satisfactory results are thus obtained, as satisfactory as in the regions reported sound.

Thus we agree with Babinski that the hysterical or pithiatic anæsthesias, in common with the analgesias and hyperæsthesias, are the result of medical suggestion or any other form of suggestion to which the patient has been exposed. They have a certain value in differential diagnosis, as they are the stigma of pronounced suggestibility.

The frequency of the anæsthesias of war is great, judging from the remarks and facts noted in the case-sheets and tickets attached to patients sent into hospital. This frequency is the result of the methods of examination employed. For as it is the current practice to make a systematic test of sensation in nervous cases in all stations from the first-aid post to the general hospitals, as the patient passes through the field-ambulance, the field-hospital, and the casualty clearing-station, etc., it may safely be said that almost all such patients present at some period objective disorders of sensation.

The time and mode of onset of these anæsthesias are impossible to specify. Not appreciated by the patient himself, they remain unknown to him until discovered in the course of an examination. It only exceptionally happens that the patient himself draws attention to the anæsthesia, which should then be regarded with suspicion as suggesting a previously hysterical subject with a recrudescence of his former symptoms.

The clinical characteristics are those described in every text-book and are so well known as to need no detailed description here. Analgesias rather than anæsthesias, of variable extent from small patches

to large areas, they may be complete, affecting all varieties of superficial sensation (touch, pain, heat and cold) and of deep sensation (sense of position, stereognostic sense). They are usually more profound than organic anæsthesias, have a distribution variously termed segmentary, glove and stocking, etc., and do not correspond to the area supplied by a peripheral nerve or nerve-root. They may, however, occasionally be found in the limbs with a distribution in parallel bands roughly resembling a radicular distribution; this is because a search is made for disorders of sensation along these lines.

Lastly, and this is an important point that must be strongly emphasized, the hysterical anæsthesia is no inconvenience to the patient. If not suffering from any motor disorder, he is easily able, with closed eyes, to execute small movements for which control over superficial sensation is indispensable, such as buttoning or unbuttoning the coat, picking up from the table a small object, such as a pin, etc.

Anæsthesia or analgesia, hyperæsthesia or hyperalgesia are seldom isolated symptoms. They nearly always form part of a more complex syndrome in which motor disorders such as hemiplegia, paraplegia, or monoplegia are the predominating phenomena.

The duration of these affections, like that of the other psychoneuroses, depends on their early diagnosis and treatment. They all rapidly disappear on treatment by the faradic current, often in a single séance. Being much less deeply-rooted than the motor disorders, they are the first to disappear when combined with the latter.

Differential Diagnosis.—A psychical anæsthesia or analgesia is easy to recognize on account of its special characters, its distribution and the symptoms which accompany it—paralysis or contracture of a pithiatic type.

This diagnosis is somewhat more difficult in

mixed hystero-organic cases—musculo-spiral or facial paralysis with added disorders of sensation—but even here a little thought will show the real nature of these anæsthesias.

In our opinion a large percentage of objective disorders of sensation of a paradoxical nature, found in soldiers with recent or old-standing wounds, belong to this group and are often only the result of suggestion at the hands of the physician.

In the more complex cases, difficulties in differential diagnosis may arise. For example, as a result of a cranial wound over the motor region of the brain, a patient may develop a hemiplegia or a monoplegia on the opposite side, with anæsthesia. Such a case may be put down as of organic origin; one may think of a hemiplegia with hemi-anæsthesia either as of thalamic origin or as a sensory syndrome of cortical origin (Dejerine's sensory cortical syndrome). But in such cases the anæsthesia affects both deep and superficial sensations, sometimes exhibiting a radicular distribution (radicular cortical distribution) and lastly, in cases of thalamic lesions, it is accompanied by pain, hemi-chorea, or hemi-tremor.

On the other hand, the results of treatment will confirm the diagnosis of a functional disorder, since the anæsthesia rapidly disappears under the influence of the faradic current.

To sum up, it is clear from what we have said that although these so-called hysterical anæsthesias may present some points of interest in the neurology of the war as signaling a psychopathic condition, their diagnostic value has been grossly exaggerated. If the physician would refrain from a systematic examination of these sensory disorders, of secondary or negligible importance, or if he adopted a more rational method of conducting the tests, the frequency of these hysterical anæsthesias would be, to say the least, very sensibly diminished.

CHAPTER V

PSYCHICAL DISORDERS OF THE SPECIAL SENSES

EVER since the commencement of the war, sensory disorder of psychoneurotic type have played such an important part that they, above all others, have been witness to the effects of the powerful modern explosives on the nervous system.

Disturbances of hearing are the most prominent of these both in importance and frequency. They appear isolated—deafness, or associated with disorders of the speech—deaf-mutism.

Visual disorders are of rarer occurrence ; disorders of the senses of smell and taste are only exceptionally observed.

§ 1. DISORDERS OF HEARING AND SPEECH

We shall describe together the disorders of hearing and speech, as they are often combined to form part of the same clinical picture.

They form a unique clinical type, almost unknown before the war, even after some disaster such as fire, shipwreck, or earthquake, and it may therefore be said that they form a pathological entity created by the present war.

The **Causal conditions** of auditory disorders are almost always violent bombardment, explosion of a mine, aerial torpedo, or large shell close at hand or at some distance, without producing any apparent external wound. They form part of the concussion syndrome and are one of the most constant elements

in it. It is only exceptionally that they are of spontaneous origin or occur in a patient with an actual cranial injury, fracture or wound in a limb.

The **Onset** is sudden and occurs after a loss of consciousness of some hours or even days, occasionally without previous loss of consciousness; the man comes to himself in a dazed condition, chatters to himself like a madman, raises himself or is carried to the first-aid post by stretcher-bearers, and on attempting to reply to the officer who questions him, finds that he cannot hear and is unable to speak. All information of the course of events with regard to the patient is given by the stretcher-bearers or the orderlies. The patient himself, once recovered, remembers the explosion and nothing more until the moment when he comes to himself in the field-ambulance.

We will give, as an example, an account written by one of our own patients :

On the 16th January I left for Verdun. In front of the village of . . . Then I was present at the capture of trenches on Hill 304 and then . . . During the day, we were under bombardment with guns of large calibre by the enemy artillery. I escaped with contusions. In the evening, when the bombardment had ceased, I got permission from the adjutant and the lieutenant to go to the first-aid post. Here I was massaged by the major. In returning to the trenches, I had with difficulty covered some 500 metres when a large shell fell two metres away. At this moment I lost my memory and started to run, whither I knew not. When a stretcher-bearer met me, he asked me where I was going. I made him understand that I could not speak. Then he took me to the first-aid post.

I remember the major questioning me. I made a sign that I was unable to speak. Then I do not exactly remember what happened. I know that from the field-hospital at Vittel I was taken to the Cérès hospital, where I remained eleven days without being able to

speaking ; from there I was transferred by the major to the hospital at Scey-sur-Saône.

This patient was cured by application of the faradic current on the day after admission.

According to their **clinical forms**, disorders of the sense of hearing present various aspects :

(1) **Deaf-Mutism**, the most frequent type, seen at the first-aid post, field-ambulance, or in hospital in three different forms (Roussy and Boisseau).

A. It may occur in soldiers in association with mental confusion ; the expression shows terror, the eyes are haggard, respiration panting and appearance anxious. The soldier is agitated and frightened, wishing to fly from the world about him and hide himself. Immediate use of therapeutic measures sometimes secures the return of speech and hearing, but in view of the restlessness, it is better to wait a few hours or days before attempting treatment. This is the type of deaf-mute with *delirious mental confusion*.

B. Sometimes the patient exhibits listless mental confusion with an expressionless, immobile face, oblivious of everything surrounding him. No sudden noise or any mode of treatment will rouse him from his condition of torpor. This is the type of deaf-mute with *dull mental confusion*.

In these two types the deaf-mutism is part of a train of symptoms of psychopathic order. It is a question of mental disorder of concussion or emotional origin accompanied by deaf-mutism. There is often insomnia, nervous agitation at night, and sometimes refusal of food ; often, during the first few days, there is a slight rise of temperature and occasionally attacks of night-terror.

C. In a third type the clinical picture is different ; the patient is perfectly conscious and seeks to draw attention to his deaf-mutism. He makes numerous gestures, points to his lips and makes signs that he wants to write ; when given the materials he writes a very detailed account of the accident. These are

the deaf-mutes described by Roussy and Boisseau as *loquacious by gesture*, and they resemble the classical type of hysterical deaf-mute.

(2) **Deafness alone**, unilateral or bilateral, is accompanied by subjective auditory symptoms—ringing sounds, noise of water and buzzing, the last being especially common. This type without alteration or modification of speech is rather less frequently seen than deaf-mutism. The deafness may be more or less complete or only be brought out on speaking very softly and is exaggerated by any lack of attention on the part of the patient.

In any case, it is identified by an important clinical characteristic which serves to differentiate it from organic deafness. The patients are little inconvenienced by their deafness; *everything occurs as if it only existed at times when the patient's attention is directed to it by investigation*. We have often come across patients suffering from concussion deafness, examined for the first time a few hours after the shock, and told them sharply to shut their eyes; taken by surprise, they almost always obey the order; subsequent attempts do not meet with success. Further, psycho-neuropathic deafness, in distinction to organic lesions of the ear, does not produce changes in the timbre or elevation of the voice; this is an important sign which, as we shall see, can be made use of in differential diagnosis.

(3) **Mutism** may also exist alone, without deafness. It is absolute and total; the patient emits no sound, makes no movement of the lips and shows by many gestures that he is incapable of speaking. The tongue is immobile and cannot be protruded or moved voluntarily. Naturally enough, automatic movements, *e.g.* of mastication, are preserved. In the cases of dumbness or deafness existing alone, as in the more complex conditions where these are combined, various changes in the psychical

state may be found, and these are described in the section dealing with deaf-mutism.

In some cases the nervous shock is succeeded, not by mutism but by simple **aphonia**. It sometimes exists from the first, but often follows mutism when the latter is on its way to recovery.

(4) **Stuttering** may exist alone or be associated with other symptoms of shock ; it appears under the same conditions as the preceding disorders, with which it may be combined ; for this reason and for convenience of description it is included in this chapter. It resembles the classical type of hysterical stutter ; its symptoms are always very pronounced, with a sudden onset and rapid or immediate cessation under the influence of electrical treatment.

This hysterical stuttering must be distinguished from true stammering, which can easily be done by the history and also, if opportunity occurs, by therapeutic methods. But it must be borne in mind that in true stammerers the multiple emotions and shocks of war may suddenly increase the difficulty of phonation and give it the appearance of mutism or hysterical stammering. A few days' rest under observation generally suffice to mitigate the disorder and clear up the diagnosis.

There are other disorders of speech, such as "nigger-boy" speech, which may for a moment be mistaken for aphasia (motor pseudo-aphasia).

Associated Signs and Symptoms.—As regards the larynx, examination shows that the vocal cords are in the position of rest.

In the ears, perforations of the tympanic membrane, sometimes accompanied by otorrhœa, may be found—organic lesions on which the psychical nervous disorder has been grafted. These more severe lesions are rare ; more often slight lesions, chronic and long-standing, are found, such as adhesive otosclerosis, scars, etc., suddenly aggravated by the shock.

Lastly, one often finds labyrinthine lesions, with vertigo, buzzing in the ear, disorders of equilibration and decreased acuteness of hearing, which appear more clearly when the neuropathic symptoms have passed away.

Lumbar puncture occasionally reveals increase of albumin with slightly increased pressure and lymphocytosis, but this is uncommon. In the large majority of cases the cerebro-spinal fluid is normal.

Headache is common ; it may persist for several weeks after the disturbance. Rise of temperature also often occurs in the severer forms, but usually abates after a rest of a week or fortnight.

The Course of these disorders of hearing of psychoneurotic type, with or without added affection of the speech, depends directly on the therapeutic measures employed and the time of their application.

Though in old cases of deaf-mutism due to shock it is difficult to effect a nervous stimulus necessary to bring back the functions of hearing and phonation, it is, on the contrary, extremely easy to "cure" patients whose affection is of recent date.

Recovery is either *immediate* (obtained at once) or *rapid* ; only exceptionally is it *slow*, that is, twenty-four to forty-eight hours after the onset.

When the patient comes round, he speaks in monosyllables, "nigger-boy" jargon, or in a variety of ridiculous ways ; in other cases there is aphonia. It is only necessary to continue or increase the electric current for a little while to bring about complete and lasting recovery. Thus there is no need whatever to resort to the long and involved methods of auditory re-education or to lip-reading, still far too often practised by specialists. Such procedures are not only useless, but they have the effect of directing the attention of the patient to the disease from which he believes himself to be suffering and thus of compromising or retarding recovery.

Relapses may occur, as in other psychoneuroses.

They are commoner in the more severe forms—sensory disorders with a confusional condition—and come on when the patient is sent back too soon to the firing-line and is again subjected to a violent bombardment.

With regard to the **Nature** of these disorders, it is quite evident that we have to deal with a psychoneurosis of emotional or concussion origin, resulting from emotional shock. They are quite on a parallel with the tremors or impotence of the limbs, the loss or disorder of speech being one of the modes of reflex outward manifestation of the emotion. As for auditory affections, it is easy to understand that the intense bombardments and the violence of modern explosives may cause auditory disorders, deafness etc., a matter of common knowledge to all who have been under heavy fire; such factors are well calculated to produce neuropathic manifestations in predisposed individuals with an already unstable nervous system.

The fact that at the start it is a genuine and real neurotic disorder cannot be doubted. It is also equally certain that patients who have unfortunately not been treated in time develop the phenomena of fixation or exaggeration more or less subconsciously. The question of routine practice in such cases is the same as arises in other psychoneuroses. We have discussed them in the chapter dealing with malingering.

The Differential Diagnosis of sensory auditory disorders must be considered as one of great ease, if the correct importance is attached to the special conditions of their onset and to their stereotyped and almost pathognomonic clinical characteristics—sudden onset following nervous shock, a manifestation of emotional shock as one symptom of the concussion syndrome, the various clinical aspects

of their symptoms with the common characteristic of rapid recovery under the application of psychotherapeutic methods.

One only needs to have seen a certain number of such cases to recognize them at once and with certainty.

Cases of deafness merit some further consideration. Judging by the observations published by specialists, it is evident that the question of *deafness of war* is a complex one, and opinion is still very divided.

Castex divides the war injuries of the auditory apparatus into two chief groups :

(1) Rupture of the tympanic membrance ; (2) labyrinthine disturbances.

Rupture of the tympanum is usually produced when a projectile (bullet or shrapnel) strikes the temporal or mastoid region or when a shell explodes without great intensity.

Labyrinthine disturbance is observed when a large-calibre shell blows up a trench and throws its occupants into the air. It is often part of a cerebral concussion. The prognosis of future hearing is very grave. The deafness tends to increase as the scar-tissue invades the delicate structures of the internal ear.

These cases of war deafness due to labyrinthine disturbances are much more severe than those occurring in workmen's accidents. The causal conditions are so much more intense.

According to Lannois and F. Chavanne, the prognosis of cases of deafness depends :

(a) On the previous condition of the auditory apparatus. Patients suffering from chronic otitis media or already pronounced otosclerosis form a far larger section of cases of deafness or impaired hearing after labyrinthine concussion due to a bursting shell than do individuals previously in good health.

(b) On the presence or absence of direct cranial trauma. Deafness is the rule in traumatic mas-

toiditis, common in extensive facial trauma in the neighbourhood of the ear, rare in fractures of the cranial vault. Deafness is therefore usually unilateral.

These authorities state that in the absence of direct trauma, labyrinthine disturbances rarely lead to total deafness; of 615 cases of labyrinthine disturbance without rupture of the tympanum, they only observed permanent bilateral deafness in 2 per cent. When it occurs, however, it is extremely serious; acoustic remedies have no influence on it; recourse must be had to lessons in lip-reading in order to make social life bearable to these unfortunate patients.

Without wishing to exceed our proper scope, we must take this opportunity, based on our own personal experience, of drawing attention to the frequency of false labyrinthine disturbance created solely by medical suggestion and to association of hysterical with organic phenomena. Otologists, perhaps, do not always ascribe to neuropathic phenomena in the wounded their merited place, and do not adequately provide against the risk of influencing the patient by suggestion when making their examination.

Of the various methods recommended to distinguish inorganic from true deafness, the "deafening method" of Lombard renders excellent service. It is performed as follows:

A normal subject raises the spoken voice when both ears are sufficiently muffled by any suitable means. This phenomenon appears to result from sudden suppression of auditory control over the intensity of the sounds emitted during normal phonation.

This deafness may be simply procured by means of telephone receivers placed to the ears and connected up with a dry battery and the circuit interrupted by a simple continuous ringing apparatus.

Instead of by telephones, temporary deafness can be produced by passing a current of water through the two auditory canals or by insufflation of air at the external meatus on both sides by means of an insufflator and a double indiarubber tube.

Psychoneurotic *mutism* is so characteristic as to preclude any error of diagnosis.

Lastly, *aphonia* occurring suddenly as a result of emotional shock is not likely to be mistaken for an organic lesion of the larynx. Interrogation and examination of the larynx will reveal organic lesions of the vocal cords existing prior to the trauma and producing dysphonia or aphonia.

§ 2. VISUAL DISORDERS

Neuropathic affections of sight are much rarer than those of hearing. Perhaps this is because these patients are more quickly sent on to the special departments and thus have a better chance of avoiding the danger of medical suggestion. Perhaps also because the auditory mechanism, much more than the visual apparatus, is submitted to so many disturbances (shock, bombardment) which establish and fix the neuropathic phenomena.

Also it must be remembered that ophthalmologists have at their disposal means of examination much more perfect and certain than that of otologists. There is no doubt that this factor reacts on the prophylaxis of ocular neuroses.

Although rare, they are by no means of exceptional occurrence.

They appear after a shell has burst at a more or less distant point, sometimes after simple atmospheric disturbance, but usually after earth or dust has been thrown up into the eyes, sometimes as a

result of asphyxiating shells or gas or tear-shells. In some cases the symptoms follow the simple presence of some foreign body in the eye or some slight trauma without any previous shock.

From a *clinical* point of view, disorders of vision are sometimes isolated and constitute the only symptom for which the patient is sent to hospital; in other cases, they are associated with further neuropathic manifestations, such as tremor, disorders of the gait, affections of the hearing, convulsive crises, etc.

Both visual disorders and motor affections of the ocular apparatus and its appendages are observed. Complete Amaurosis is not rare. These supposedly sightless patients have been sometimes for several months in various neurological departments, in whom examination of the eye has revealed the hysterical nature of the blindness.

Amblyopia and Photophobia are frequent phenomena; they usually accompany other neuropathic disorders such as hemiplegia or paraplegia. They are patients who wear large smoked glasses, who complain that their sight has been affected since the explosion of a shell or the discharge of gas, who complain of indefinite tingling and watering of the eyes, and who have been recommended to wear dark glasses. All these phenomena yield to psychotherapy.

Blepharospasm (uni- or bilateral), Movements of the Lids or Blinking of neuropathic type are by no means rare. Nystagmus is more exceptional, a few cases only having been recorded.

We will not go into details regarding the *course* of these visual disturbances, as the same considerations hold as in auditory disorders.

When unrecognized as such, they may persist for a long time, even indefinitely; diagnosed and treated in the approved manner, they are certain of immediate recovery.

To complete this chapter, we must just mention the rare conditions of neuropathic loss of smell and loss of taste following a shock or trauma of war. They are of exceptional occurrence and as neuroses of war offer no special peculiarities ; like the objective disorders of sensation, they are usually the result of medical suggestion. There is nothing easier, indeed, than to create a hemi-ageusia or hemi-anosmia in a highly neuropathic individual. But it is just as easy to effect its disappearance.

CHAPTER VI

DISORDERS OF SPHINCTER CONTROL

THE existence of affections of the sphincters in the psychoneuroses—notably in hysteria—is still recognized in standard text-books. On the other hand, Babinski and many other neurologists deny that hysteria alone can create permanent and lasting disturbances of function in vital organs and ascribe any visceral affections to intentional deceit or to some unrecognized organic affection.

These new views have by no means yet pervaded the medical profession, which, with its naturally conservative point of view, tends to remain faithful to the attractive doctrines (not to say dogmas) of the Salpêtrière school.

As will be realized from this short preface, we are not devoting this chapter to sphincteric disorders in the psychoneuroses of war because we accept the old-established pathological limits of hysteria, but because the present circumstances, so favourable for medical observation, compel us to cite the facts we have noted during a period which has abounded in neuropathic affections. We may say in advance that these facts throw their weight on the side of Babinski's theory.

§ 1. DISORDERS OF MICTURITION

Judging from the diagnoses found on case-sheets and discharge-papers, disturbances of the vesical function are of frequent occurrence. Frequently enough, soldiers are sent from their regiments to

the Army Neurological Centres owing to neuropathic vesical disorders; just as numerous are the cases which, in the interior, are transferred from the medical, surgical, or even urological departments to the special institutions for nervous diseases.

INCONTINENCE AND RETENTION OF URINE are the two most frequent disorders, and are the only sphincteric affections we need consider.

A. "Hysterical" incontinence of urine, or better, false incontinence, in soldiers is more common than retention, and for a very good reason! Not accompanied by any painful symptom and not disturbing in any way the function of the organ, it nevertheless always necessitates the rapid discharge of the patient, who wets his clothes by night and day, wets the mattress on which he sleeps and becomes an unpleasant companion to the men in his company. "This patient is an annoyance to his comrades and cannot be allowed to remain in the corps" is the usual remark which figures on his discharge-paper.

Cases of psycho-neuropathic incontinence of urine observed during the war fall into four different groups:

(1) *False incontinence due to shock*.—In this first type the patient, after some violent bombardment or temporary burial, presents the various symptoms of the concussion syndrome—loss of consciousness, tremor, deaf-mutism, paralytic motor disorders, etc., to which is added incontinence of urine. The patient, at the moment of the shock, has passed water, a phenomenon easily explained by the emotional reaction. Little by little this disorder becomes chronic and fixed subconsciously; this fixation is especially furthered by erroneous diagnosis or injudicious medical examination; thus the involuntary escape of urine becomes definitely established. In such patients, tests of the tendino-muscular and cutaneous reflexes and perineo-scrotal sensation exclude any organic lesion of the cord or cauda

equina. Moreover, the timely application of psychotherapy soon puts an end to this false incontinence.

(2) *False incontinence due to habit.*—In this variety the involuntary escape of urine—usually nocturnal, rarely diurnal—commences without any apparent cause or follows some minor incident such as a slight febrile affection or some vesical derangement. These are soldiers who have long been in various hospital departments, who have gone through their military training without being discharged, and in whom the incontinence of urine has only been noticed since the war. They are sometimes individuals with mental deficiency; such cases were specially common in the army last year when Dalbiez' measure came into force. No organic mischief is revealed on examination. It is not a case of so-called essential incontinence, first because the onset dates back several weeks or months in men of twenty, thirty, and forty years of age; secondly, because energetic re-educative treatment always puts a stop to it. They are men who have got into the bad habit of wetting the bed—*habit-piddlers*—somewhat resembling those who have contracted the habit of limping. We can apply to them all the considerations discussed under claudication; the same pathogenesis is at work in their origin and fixation, and the same remarks apply with regard to the genuineness of the disorders under observation. But it must be understood that here, again, there is a real, irritative organic lesion at the basis of the perversion of function of the organ in question; it is the persistence of the incontinence, or its association with the condition which produces it, which is illogical and paradoxical.

We will only point to the need of carrying out vigorous treatment, instituting a strict inspection of the bed-clothes and garments of the patient, assisting treatment by an application of the faradic current to the perineum and, if necessary, by an intrathecal injection. In a very few days the symptoms, wrongly

considered to be particularly intractable, will be found to disappear.

(3) *Recurrence of "essential" incontinence of urine.*—In other cases there may be attacks of true incontinence after a freedom for some years, provoked by fatigue, emotion, or shock, comparable to epilepsy. These are previously discharged men or reservists who have recently joined up, in whom the history and mental examination reveal evident psychopathic stigmata. These manifestations, always implying some appreciable mental defect, do not directly concern the psychoneuroses of war, but are rather psychopathic disorders of a constitutional type, which the events of war have only rendered more apparent.

Psychotherapy is not applicable to such cases. They are soldiers of no value to the army and are only fit for sedentary work or discharge to class 2.

(4) There remains, lastly, a *type of incontinence often wrongly described as hysterical or psychopathic*, which, though rare, is important to recognize, as it is the object of many incorrect diagnoses. It is an incontinence which follows a period of incomplete retention or a short period of complete retention, and which is due to a slight lesion of the cauda equina or conus medullaris, a lesion which only produces an incomplete clinical syndrome and often passes unobserved unless sought for with care. One of our own patients was for a long time treated and considered as an ordinary incontinent psychopath (and even as a malingerer), when he was really suffering from an organic lesion of the cauda equina which had not been discovered.

B. Hysterical retention of urine is much rarer than incontinence, as will be seen by examining the diagnoses on the case-sheets. We have given the reason above.

In our opinion there is no such thing as true hysterical retention.

In this type, again, we have to deal with patients suffering from concussion, who immediately exhibit retention of urine and are sent back as such.

In all the cases that have come under our observation and which we have been able to examine thoroughly, either at the front or behind the lines, we have found either that—

(1) The retention has only been transitory, lasting some hours or days after the concussion and necessitating the use of a catheter. These are transient spastic phenomena, of concussion or emotional type, and disappear spontaneously, or

(2) The retention has been incomplete, with vesical pain, necessitating the passage of catheters at the field-hospital or ambulance-train. Tests of the vesical reflexes by a genito-urinary surgeon show a normal condition of the bladder. But the neurologist will find increase of the tendon and bone reflexes and sometimes ankle-clonus, hypæsthesia of the perineo-scrotal region, abolition of the anal reflex (uni- or bilateral), or changes in the cremasteric and abdominal reflexes. Lastly, lumbar-puncture may reveal lymphocytosis or slight increase of albumin.

In some cases, then, there will be indefinite signs of a unilateral or bilateral lesion of the cauda equina; in others (where lymphocytosis is found), signs of a lesion of the cord, often of a specific nature. These are abortive organic lesions which it is important to diagnose.

No case of “hysterical” anuria has been observed, to our knowledge, during the war, nor is this surprising. Further, the days have long since passed since hysterical anuria was recognized as a definite entity, even by partisans of the classical doctrine of hysteria.

Polyuria or Pollakiuria.—Though these may be found as transient manifestations or reflex emotional reactions, they are only of short duration unless caused

by a latent organic lesion of the bladder or kidneys, previously unrecognized.

§ 2. DISORDERS OF THE ANO-RECTAL SPHINCTER

These are only mentioned in order to deny their existence as psychoneuroses. Apart from *emotional diarrrhœa*, common on the battle-field, and relaxation of all the sphincters in cases of severe concussion, the cases one sees (and this only exceptionally) are those of false incontinence in the weak and degenerate, who more or less unconsciously soil their clothes with urine and fæces and who may be improved by a severe reprimand.

To sum up: of the cases drawn from the vast field of observation at the present time, it will be seen that none of those studied in this chapter comes within the old meaning of the word "hysteria." They all show other and different characteristics on thorough examination.

CHAPTER VII

VISCERAL DISORDERS

IN the group of physical phenomena produced by emotion we must take into account the physiology and pathology of visceral disturbances. As we know, the emotional states do not find expression solely in modifications of sensation and of motor function, but also in extensive though transient disturbances of function of the viscera. It is a strange phenomenon that psychoneuroses of an emotional nature react at times on the functions of certain viscera, and it is also surprising that the mechanism of these disturbances still remains a matter of pure speculation.

The visceral complaints which may result from emotion are extremely varied, and it may be said that there is no system of the human body in which the emotion may not find expression. But these *immediate* emotional disorders are essentially transient, and when the cause of the emotion is no longer at work they vanish without leaving any trace.

The same cannot be said of certain affections which may, *in a neuropathic individual*, become fixed for a more or less protracted period. We shall discuss digestive, cardiac, and respiratory disorders.

§ 1. DIGESTIVE DISORDERS.—Hysterical or mental anorexia and the disturbances of sensation in the intestinal tract which they present are matters of common knowledge. We shall not discuss them here, as we have not seen a single example during the war.

Vomiting deserves attention, being relatively common. It is contradictory in its behaviour and cannot fail to be recognized when such a case has once been witnessed. After a fairly long spell in the trenches, a young soldier, of previous good health but who has occasionally suffered from digestive trouble at the front, is sent back on account of persistent vomiting.

At the first examination the observer is surprised at the more or less perfect preservation of the general condition of the patient and doubts the reality of the vomiting. Careful watching excludes deliberate deceit, however, and shows the reality of this abnormal gastric phenomena. Occurring several times a day, without apparent cause, this neuropathic vomiting occurs without any great effort and terminates without the patient experiencing any real fatigue. It is essentially alimentary, semi-digested food being found in the vomit; sometimes there is slight regurgitation of bile.

Examination fails to reveal any abnormality of the stomach. It is not hypersensitive, and splashing is not heard or felt. The liver is normal.

If, as in our own cases, an X-ray examination is made after a bismuth-meal, one finds either that the stomach is absolutely normal and is emptied in a normal length of time, or that, while retaining a normal motility, the pyloric canal lies somewhat lower than normal. This slight gastropexia can hardly be held to explain the origin of the vomiting.

One of the most striking peculiarities of neuropathic vomiting is that it by no means impairs nutrition. The patient preserves his appetite and loses little weight, a certain proof that in spite of its frequent bouts, the vomiting nevertheless allows a fairly large quantity of chyme to pass into the intestine.

The *diagnosis* of neuropathic vomiting, as we see,

offers no difficulty. It must not be made, however, until all organic causes have been eliminated, especially ulcer in the region of the pylorus.

There is often some underlying organic condition which must be sought for and treated as soon as the neuropathic element has disappeared. There seems to be no tendency to spontaneous cure in this neuropathic manifestation. Certain patients reach us after having been in various medical departments and institutions, where they have, perhaps, been rather neglected owing to the intractable and discouraging tenacity of the vomiting.

Great attention should therefore be paid to these patients and treatment should consist both of a strict dietetic régime from the outset, accompanied by psychotherapy.

With regard to their *nature* and *genesis*, the same considerations apply as those given for incontinence of urine (*cf.* p. 101).

§ 2. RESPIRATORY DISORDERS. — **Neuropathic Tachypnœa.**—These are much less common than the digestive disorders and much more difficult to distinguish. It is true that there is disturbance of the respiratory function in every emotional condition, taking the form either of acceleration or retardation of respiratory movements; but it is quite exceptional for this affection to become fixed for a sufficient length of time to permit of careful observation or to exhibit recurrences such as we have discussed above.

All regimental medical officers have seen, after violent bombardments, soldiers a prey to prolonged emotion. In these cases the rapid respiratory movements are the striking feature; when at rest in a place of safety, stimulated by cheery encouragement, the patients quickly become quiet and the rapid breathing disappears.

This tachypnœa may, however, recur when the patient has been brought to the field-ambulance

or even in a base-hospital. This is *neuropathic paroxysmal tachypnœa*, of which there have been a number of cases during the war.

There is a great point of distinction between this purely functional disorder of emotional origin and affections of similar character, but due to visceral lesions; it is that this tachypnœa is always accompanied by blatant, excessive and disproportionate manifestations. The disorder is not limited to an acceleration of the respiratory movements, but the patient is seized by general agitation. This is often a striking feature during an attack of tachypnœa: the patient groans or excitedly shouts for help, his limbs are shaken by disorderly movements or by a tremor. The rate of the respiratory movements may be considerably increased, but it is often really lower than it appears. The excursions of the chest-wall are wide, expiration and inspiration are noisy and interrupted by guttural sounds, appeals for help, or groans.

In spite of this impressive respiratory condition, the pulse remains quiet, hardly increased at all in frequency.

This so-called polypnœa of exertion is increased not only by the slightest movement, but even by such trivial actions as replying to questions or shaking hands, and this when the patient is lying comfortably in bed. The mere fact of someone entering the room suddenly is enough to start a crisis.

A severe reprimand and a few blows on the chest from a towel wrung out of cold water often suffice to cut short an attack.

The same may be said of isolation; as long as the patient is not watched by a friend, the doctor, or a nurse, he has no attack of tachypnœa. As in all the extravagant manifestations of the psychoneuroses, they need for their production and development a sphere of interested spectators.

We must add that true neuropathic tachypnœa is rarely a single, isolated phenomenon. A careful

examination will usually reveal other manifestations of the neurosis.

§ 3. CIRCULATORY DISORDERS. — **Tachycardia, Bradycardia.**—Like the last group, these also form an integral part of the emotional states. They are much more likely to recur than are respiratory phenomena. Cases of psycho-neuropathic tachycardia are not uncommon even in the general hospitals in the interior.

Psycho-neuropathic tachycardia, like tachypnœa, is characterized by its occurrence in *paroxysmal attacks, which are brought on by the revival of an emotion.*

The cardiac disturbance is not usually the only feature, the patient at the same time exhibiting other psycho-neuropathic manifestations—paralysis or contracture, disorders of the gait, stuttering, etc.

The attack of tachycardia is brought on by the remembrance of a previous emotional state. This recollection may be brought about by medical inquiry—a common occurrence, though its connection with the recrudescence of the emotion is not quite clear; or by some perception which is somehow connected with the idea of the battle.

Unlike true paroxysmal tachycardia, the attack does not come on with the same suddenness and is not accompanied by any initial cardiac shock nor by any distress. The pulse-rate rapidly rises and the arteries pulsate visibly under the skin, but the patient is not specially embarrassed. It may reach 120-140 per minute and vary round this figure for several hours. Then the heart quiets down and the rate becomes normal.

The attack is often of much shorter duration, lasting not more than half an hour; in exceptional cases the tachycardia may persist for several days, sometimes appearing and disappearing without apparent cause.

Claude and Lhermitte have observed cases of

prolonged attacks of tachycardia alternating with hysterical convulsive crises. In these patients there was no cardiac lesion whatever and no alteration in the vascular tone or arterial tension; the renal functions were normal.

Although we by no means intend to refer these hysterical convulsive crises and tachycardia to the same origin, it is interesting to note the occurrence in the same patient of two manifestations, the sources of which are fairly closely related—the extravagant motor agitation of the convulsive crisis and tachycardia.

Psycho-neuropathic tachycardia never produces very alarming cardiac disorders and never causes cardiac failure.

More rarely, the psycho-neuropathic condition takes the form of a slowing of the pulse-rate. In two cases observed by Claude and Lhermitte, *paroxysmal attacks of bradycardia* alternated with severe fits of convulsive hysteria. In spite of the obscurity which still surrounds the pathogenesis of such cases, we have thought them interesting enough to mention in passing.

Tachycardia and bradycardia are particularly obstinate to any form of treatment.

CHAPTER VIII

NERVOUS ATTACKS

(Les crises nerveuses)

THE nervous crises of psycho-neuropathic origin form, we believe, a natural stepping-stone between the disorders we have just described and the purely psychological manifestations. Although these psychological disturbances may not be of premier importance amongst the various "crises" that may be observed and are difficult to analyse, yet they form an integral part of the clinical picture and in some cases are of the greatest importance. Their motor and sensory phenomena are well marked and at once distinguish such attacks.

§ 1. THE FIT OF TERROR

(La crise d'anxiété)

We need give no description of paroxysmal attacks of terror and mental anguish; they are well known, and from the point of view of the war present few peculiarities. It must be clearly understood that these outbursts of terror or anguish may occur in even the most courageous soldiers; further, that these manifestations do not represent an intense and extravagant reaction to the legitimate emotion of the battle, as we might be tempted to imagine, but simply some previous disorder which the war has not sensibly modified.

On the other hand, symptoms of extreme terror observed amongst soldiers in the firing-line itself are much more frequent and characteristic. During

a preparatory bombardment or an artillery barrage by the enemy, men may be found incapable of any gesture, terror-stricken, fear written upon their faces; these men are quite unable to reply to questions put to them. Respiration is rapid and irregular, the heart-rate much increased. Some, in an effort to escape from this mental torture, exhaust themselves by various gestures and fruitless agitation; then quite suddenly the terror abates and the soldier becomes quiet and almost serene and placid.

It must not be thought, however, that these essentially emotional phenomena of active service are only witnessed during action; they are almost as common during preparation for an attack. They are seen even at the time of mobilization. Fatigue, overwork and intemperate habits are certainly not unconnected with their production.

These crises of terror and mental anguish must not be confused with common cowardice. The real coward, even at the most critical moments, preserves his instinct of self-preservation; the other, on the contrary, attempts neither to protect himself nor to escape, his actions being inhibited by the very mental torture which he suffers. Lastly, cowardice is practically constant—a coward he is and a coward he remains at every critical moment. The other does not always react in the same way when submitted to the same dangers; often brave and courageous under dramatic circumstances, some relatively slight emotion may precipitate a crisis.

As a rule the fits of terror only occur at long intervals and do not entail the discharge of the soldier. In some cases, however, they develop an intensity and frequency such that the patient becomes incapable of regular military duties and has to be sent back. Under these circumstances the fits of mental anguish are accompanied by somewhat different manifestations. Other and more striking features are added to the phenomena of simple terror, which render the symptomatic picture more com-

plex. Further, the occurrence of a crisis is not determined by an emotion at the time, but only by a recollection of previous emotions which the patient brings to mind.

The memory of these emotions may remain latent and only come to light on the occurrence of some incident with which they are in some way closely associated ; but most often the production of this anxiety emotion is stirred up and revived very easily. When one speaks to the patient about the bombardments he has experienced or the attacks he has helped to repulse, his expression soon bears witness to his deep emotion. He rises excitedly and becomes agitated, his respiration is accelerated and his pulse quickens. Sometimes the very fear expressed by his eyes seems to beg for respite from the discussion of such an alarming subject. In such a patient, the expression of terror is profound ; his whole body shakes, his legs give way, his voice is broken and speech is disturbed. He tries to escape, cowers in a corner of the room or appears to repulse an imaginary enemy. It is quite certain, however, that there is no real hallucination.

In the intervals between the attacks, the patient is quiet and peaceful, though somewhat melancholy and preoccupied. Sleep is irregular, interrupted by nightmares or dreams of war which, by bringing such recollections into consciousness, may engender a crisis of terror.

Although it is not always easy to determine the exact part played by alcoholism in these conditions, it seems that these states of revival of emotion cannot be entirely put down to this factor. Though it is possible or even probable that it plays some part in certain patients, it is undeniable that it is not the only factor. Alcohol may prepare the soil and, so to speak, make the bed for the neurosis ; but the essential element is emotion, or more often the sum-total of emotions which, acting on a constitution with congenital or acquired predisposition,

creates this special disposition to revival of the terror.

The *prognosis* of these conditions is, in the great majority of cases, a favourable one and, apart from the emotional features we have described, there is no other disorder of the psychological functions.

§ 2. THE FIT OF MOTOR AGITATION

(*La crise hystérique*)

The severe attack of hysteria major described so minutely by Charcot and P. Richer had almost disappeared from medical observation since hysteria has been treated by strict isolation, until its revival during the war with all its wild and extravagant characteristics. In the trenches, at the field dressing-stations, in the field-hospitals and in the interior, there is not a medical officer who has not had occasion to observe numerous cases of "nervous crises" of a neuropathic or hysterical nature. Unfortunately these are still far too often deliberately labelled "epileptiform attacks" and confused with those of true epilepsy. We shall return to the differential diagnosis later.

Although the cases that have come under our observation do not entirely correspond to the description given by the Salpêtrière school, all the essential elements may, however, be exhibited: tonic and clonic phases, contortionate movements and sometimes periods of "attitude" indicative of the various passions.

Just as in the other psycho-neuropathic disorders we have successively described, each patient modifies the attack in his own fashion and according to his individual personality. In spite of this, the same chain of events is usually observed.

The onset of the attack is striking; the patient makes various contortions, rolls on the bed or throws himself onto the ground. The body stiffens,

the head is thrown back, the eyes are prominent and rolled upwards under the quivering lids. The face is cyanosed, the veins of the neck are distended and respiration is suspended for a short time. Then commences a series of uncontrolled and extraordinary attitudes. The limbs are thrown wildly about, striking the wall or the floor; the hands clutch at the garments or bed-clothes, tear or snatch at anything within reach; or the patient may fall to the floor making the most alarming movements, shouting, struggling, throwing himself at the nurses or breaking the windows. Notwithstanding this terrifying condition, well calculated to frighten those who are not familiar with this tumultuous psychopathic agitation, the patient can be restrained fairly easily, and the free use of cold water applied to the face and thorax or the application of a faradic current will soon put a stop to this uncontrolled outburst.

The exciting *cause* of these attacks varies; imitation and suggestion are often at work.

Emotion may be the immediate cause or it may be only the recollection of an emotion that brings on the attack.

When the active, struggling movements have ceased, the patient comes to himself, rather hazy and fatigued, but usually knowing what has occurred.

We must repeat that it is only necessary to treat these convulsive manifestations by energetic psychotherapeutic methods to see them quickly disappear. It is indispensable, too, that "prophylactic surroundings" shall be obtained in any branch of the service dealing with nervous cases; and even the patients themselves know the medical officers whose cases do not have nervous crises.

Do we infer that these crises are pure shamming, under the complete control of the patient and produced with the object of impressing those around him? This would be going too far and ignoring

the rôle of the subconscious which, once the attack has commenced, is at work in the sense of directing the various motor manifestations. But it appears quite evident, and this is based on numerous personal observations, that the patient can, *if he wishes*, always prevent the onset of an attack, especially if helped by the means indicated above.

How many times have we received patients sent back on account of daily and almost continuous nervous attacks, patients who have not exhibited a single relapse in hospital during a period of observation of over a month! A severe admonition on admission and a promise given by the patient have brought about a cure.

It may, therefore, be said that although these attacks are a form of psycho-neuropathic disorder frequently written up on the patients' admission-sheets, they are of exceptional occurrence in a well-organized and properly-managed institution.

Diagnosis.—We cannot discuss here the points of differential diagnosis between hysterical crises and epilepsy.

We will only suggest that in the large majority of cases, the diagnosis is easy. An epileptic fit is distinguished by an initial cry, pallor of the face, mydriasis, biting of the tongue, ecchymoses in the palpebral conjunctiva, spontaneous passage of urine and deep sleep; also by its onset in infancy or childhood and occurrence by day or night without obvious cause. All these features are wanting in hysterical conditions.

It must be admitted, however, that the differential characteristics are not always so clearly defined, and the diagnosis of the nature of a convulsive fit is not an easy matter, even when the physician is able to observe the attack.

Masked forms of epilepsy with an increase in the frequency of the fits are far from rare amongst soldiers,

and may, by their resemblance to hysteria, give rise to difficulty in diagnosis. They must be kept under observation for some time before a definite diagnosis is made and discharge is decided upon. One too often sees the name "hystero-epilepsy" applied to these cases, a term which is only used as a cloak of ignorance.

CHAPTER IX

PSYCHICAL DISORDERS

IN the foregoing chapters we have studied the various motor, sensory and visceral manifestations of the psychoneuroses. We have dwelt upon the fundamental fact that these phenomena, so diverse in their clinical features, have their origin in a psychical disturbance based on the emotions, a disturbance which is common to all these affections and which allows their classification into a distinct nosological group—that of the psychoneuroses.

We must now commence to study those manifestations which are practically limited to the mind, not the psychoses proper but the psychical disorders which fall into the general group of psychoneuroses of war.

The psychoneuroses, with psychical features predominant, are less common than the other varieties, but have been observed all through the war and it must be anticipated that they will by no means completely disappear on the cessation of hostilities. From the standpoint of time of occurrence they might be grouped into three classes corresponding to the three chief phases of war service, *i.e.* psychopathic disorders of mobilization, battle, and rest. This classification, attractive though it may seem, should not be adopted, for the reason that the psychical disorders of the various stages of war do not differ sufficiently from one another either in their clinical characters or etiology.

The same consideration holds for their classification according to the locality in which they develop. Even if there are distinct mental psychoneuroses of the firing-line and of the base (not to

mention those of prisoners of war), it would be difficult to classify them on such a foundation.

The whole subject of the psychical disorders of war is somewhat confused and uncertain and we are compelled to adopt a strictly clinical basis.

Taking the whole group of individuals who, in the course of the war, have presented or present psychopathic symptoms, it is important in the first place to make a clear distinction between those mental disorders which have only been *aggravated* by the events of war and those which have been definitely *caused* by them.

All who have worked, either near the firing-line or at the base, and who have examined men afflicted with mental disorders, have found that certain patients suffering from *delirium of war* were in reality cases of general paralysis of the insane, of mania, of persecutory insanity, or of melancholia; the state of war had only added colour to their madness. In all such cases, the war has only set a special seal on their disordered mental or emotional condition. The disease itself, whether general paralysis or mania, for example, remains the same as in the days of peace; neither its prognosis nor its course has been modified.

The same is the case with mental defectives who, accustomed to a quiet and largely automatic mode of life, have exhibited fits of insanity under the influence of the war, which has disturbed their mental equilibrium. Here, again, military operations have only given fresh ideas to an undeveloped and weak imagination. How numerous are these inventors of destructive machines, these prophets and mystics! They have always existed, and their insane ideas of to-day are but modified reflections of the very ideas held by the agitators of yesterday.

In addition to this first group, there are certain psychopathic disorders which, though similar in many ways, are of different etiology. These are

the psychical manifestations not directly brought on by the war, but the result of fatigue, strain, and especially alcoholism. Cases of this nature have been and are still numerous. It is evident that the state of war itself is not exclusively responsible, but it cannot be denied that it has an unfavourable influence on a weak or previously damaged mind; and it also tends to lead certain individuals, may be owing to their unsettled life and possible idleness, to give way to their craving for alcohol. In any case, these hardly come within our scope and we have only mentioned them in order to contrast them with psychopathic disorders which are, on the contrary, directly associated with the state of war.

The two great etiological and pathogenic factors at work in producing the psychical phenomena of the psychoneuroses of war may be summed up in two words: *emotion* and *concussion*. It goes without saying that these two elements often exist together and are so intricately bound up one with the other that in certain cases it is impossible to decide their relative rôles. Like the various neuropathic disorders already described, they are not based on any material lesions (with the reservations which this term implies) of the nerve centres, and they recover without leaving any trace.

As we have pointed out above, emotion depresses or stimulates, excites or paralyses; and just as in the motor sphere, where a morbid emotion may make itself visible by paralysis or convulsions, so in the mental sphere it may come to light as an inhibition or diminution of psychical activity, or as an unbridling of the immoderate and anarchical activity of the cerebral centres.

§ 1. PSYCHICAL DISORDERS DUE TO INHIBITION OR DIMINUTION OF MENTAL ACTIVITY

A. NARCOLEPSY.—Pathological sleep or narcolepsy is clearly the most striking and the purest

manifestation of inhibition of cerebral activity. Plunged into deep slumber, the patient loses all contact with the outside world, all voluntary control (*vie de relation*) is lost, and it is only the functions of the vital organs (*vie végétative*) that remain intact.

Everyone has heard accounts of these "trances," and cases are recorded from time to time in the newspapers; but before the war they had become of extreme rarity. In the army, narcolepsy is not very rare. It usually commences suddenly, either during or after a bombardment. The patient falls asleep in a trench or shelter; after a varying interval, attempts are made to arouse him, all without success. From this time the clinical picture is established and does not become modified in any way.

When the limbs are raised they fall back limply or are sometimes slightly hypertonic; respiration is quiet and normal; the rate of the heart is usually slightly slower than normal but the beat is vigorous. The facial expression reflects no psychical activity and resembles that of a tired sleeper. However, on closer examination one is struck by a quivering of the eyelids and a rapid and fine tremor of the orbicularis palpebrarum. If attempts are made to separate the lids, difficulty is experienced owing to contracture of the orbicularis. The eyeballs are usually rolled upwards and immobile. Touching the bulbar conjunctiva calls forth no reflex movement; the same is the case with all cutaneous stimulation, the most severe stimulus not awakening the patient. From time to time he makes movements of deglutition or grinds the teeth. Urine and fæces are sometimes retained, or there may be diarrhœa and incontinence. Sent back, usually with the diagnosis of *coma due to shock*, the patient remains in this condition for several days; then one morning, without any apparent cause, he suddenly wakes. He looks around him in astonishment and declares

that he remembers nothing that has passed since he was under fire.

It is clear that the diagnosis of this so-called hysterical narcolepsy is extremely simple; it ought never to be mistaken for coma due to true concussion, on account of the complete absence of any alteration in the tendon and cutaneous reflexes and the integrity of the circulatory and respiratory functions. The patient always recovers more or less rapidly, according to whether it is left to take its natural course or whether energetic psychotherapy is employed.

Lastly, we must mention that at a Neurological Centre near the front we have only observed one isolated case in eighteen months. Thus medical suggestion and erroneous diagnosis seem to be at work in the fixation of the disorder.

B. THE CONFUSIONAL STATES.—Just as narcolepsy is characterized by profound sleep, so the confusional conditions are distinguished by a very profound retardation of the psychical functions—torpor, cerebral inactivity, sluggishness of ideation. It is, in reality, a sleep less profound and limited to the functions of the intellect. The confusional states show great variation in their clinical expression; there are all intermediate gradations between confusion with stupor, amounting almost to complete sleep, and simple dulness of the intellectual faculties.

1. Mental Confusion with Stupor.—As a result of bombardment and due either to shock or simple emotion, a soldier, who seemed in no way predisposed to such an affection, presents the following clinical picture. Plunged into torpor, with an expressionless face and haggard eyes, he is unable to answer any question. None of the everyday external stimuli produce any reaction. Like the idols of the psalm, “Eyes have they, but they see not; they have ears, but they hear not,” and

they seem complete strangers to the world about them. They are easily led and on the battle-field are not influenced by the whistling of bullets nor the bursting of a shell.

The circulatory and respiratory systems are not deranged, and examination reveals no sign of a lesion of the nervous system.

This condition lasts a variable length of time; the return to consciousness is always gradual, the patient passing through the phases of obtusion and torpor, the characters of which we shall study.

2. Simple Mental Confusion.—This is essentially characterized by an extreme slowness of ideation, a complete disorientation in time and space, a reduction of the perceptions and a numbing of the emotional faculties—in a word, the slowing-down of all the psychical functions.

Further, memory is affected, and there is always amnesia of a special type, in which exact and precise facts and extravagant forgetfulness are intermingled. This amnesia usually relates to the events which occurred from the moment of the shock and emotion. It is thus essentially an anterograde amnesia or an amnesia of fixation.

As in the preceding form, there is a progressive return to full consciousness; and when the re-establishment of the normal psychical life has occurred, the patient has forgotten the events of the confusional phase.

3. Confusion and Obtusion.—Care must be taken to distinguish these one from another; the latter is characterized by disorientation in time and space, the former chiefly by a slowness of ideation and amnesia. In spite of this difference the two conditions may be closely compared, as has been done by most psychiatrists (Régis in particular) on account of their common pathogenesis and mental foundation, dominated as it is by *asthenia*.

Thus, in conditions of obtusion and torpor, the disorientation is not absolute; but the perceptions and apperceptions are retarded and thrown into confusion. The patient appears melancholy and depressed, shuns society, makes no effort to realize what is taking place around him; his slow and laborious replies give the impression of a great effort.

In all these types of confusion, attention and memory are affected; but in certain cases the confusional syndrome is hardly apparent, either as regards the disturbance of attention or of memory. Two special types of mental confusion, in which aprosexia and amnesia respectively are the predominant features, have been described.

(a) *Aprosexic Form*.—This form has recently been described by Chavigny and is characterized by the loss of voluntary fixation of attention. The patient is bright and active, the reverse of the condition in true mental confusion. At the mercy of all the various external stimuli, he resembles the infant, who instinctively turns his eyes to anything that shines or makes a noise. As in the infant, it appears as though the sensations are not transformed into perceptions, that they remain isolated and apart from his personality. It should be noticed that in spite of this instability—resembling “that of certain cage-birds which incessantly turn their heads towards noises or movements round about them”—the power of imitation remains unaffected.

This condition persists for several days, after which the patient gradually regains his psychical activity, but he always remains amnesic as regards the events that have occurred since the initial accident (emotion or concussion).

This aprosexia may, as in other forms of mental confusion, be complicated by psycho-neuropathic disorders: mutism, deafness, or convulsive attacks.

(b) *Amnesic Form*.—It is a well-known fact that

amnesia is the predominating feature in certain toxic or infective forms of mental confusion, and it forms the most obvious manifestation of Korsakoff's syndrome. The war has shown that the amnesic form of mental confusion is by no means peculiar to toxic and infective conditions; it has, indeed, proved that in many cases amnesia may be almost the only symptom of confusion due to concussion or emotion; Régis, Chavigny, G. Dumas and the present authors have recorded many very striking examples of this condition. The amnesia seen in the mental confusion of the soldier presents some very interesting peculiarities.

It is sometimes an incomplete amnesia, or more correctly a dysmnesia, a mingling and jumbling of recollection with regard to all that has taken place since the emotion or shock which has caused it; it is "not absolute night but a rather dim twilight." More frequently the amnesia is absolute, a gap or break in the series of recollections. In distinction to the amnesia of toxic or infective confusion, this loss of memory relates not exclusively to the period following the initial physical or psychical trauma, but extends to a period, often quite prolonged, anterior to the accident. It even deletes from the mind of the patient his name, parentage, age and calling. All the previous events of his life may be effaced from memory and cannot be brought back to him. And just as it can be said that the amnesia of toxic confusion is *anterograde* (amnesia of fixation), the amnesia of confusional conditions due to shock or emotion is *antero-retrograde*. We do not apologize for laying such stress on this point, as it is a special character of amnesia due to emotion or concussion. Sometimes from this absolute darkness emerges a solitary recollection—that of the shock; he knows not his name or his age, but remembers having been present at some terrible scene of slaughter. As G. Dumas has pointed out so fittingly, though his memory is in abeyance, he preserves his motor

functions and practical knowledge, which have long been automatic. He is able to dress himself, read, and write.

This antero-retrograde amnesia may be less complete and behave in an extremely curious and contradictory manner. It may affect certain branches of conscious knowledge and spare others.

In some cases it is the visual images which are chiefly affected, the auditory images remaining intact; the patient is unable to picture the most familiar objects, such as a horse or a bird, and he even loses his mental picture of individuals.

These *selective amnesias* may also affect written language and produce the phenomena of aphasia, or, more correctly, of pseudo-aphasia (word blindness, letter blindness). Certain patients preserve the auditory word-image, but have lost the power of graphic representation; thus even the most educated individuals write with the most extraordinary orthography.

§ 2. PSYCHICAL DISORDERS DUE TO INORDINATE EXCITATION OF THE MENTAL ACTIVITY

HALLUCINATORY MENTAL CONFUSION. ONEIRIC DELIRIUM.—In these cases the etiology is the same as before: emotion and concussion. Mental asthenia, confusion, and disorientation are here not the only symptoms. These conditions are also characterized by *delirium*, usually an active delirium resembling the toxic variety, described by Lasègue as *visionary delirium*, by Régis as *oneiric delirium*. Occurring in soldiers a prey to the daily emotions of trench warfare, it is easy to explain the predominance of some “motif” to do with the war as the usual theme of these manifestations. The confusional delirium, as always, is not confined to the imagination, but is accompanied by gestures; it is not only a dream, but a dream lived through. A prey to oneiric excite-

ment, the patient loses all sense of reality, shows complete contempt of danger, running along the parapet and offering his body as a target, although nothing in his behaviour evinces any emotional reaction. Sometimes, straying at random, he will wander for hours no matter where, then suddenly come to himself, having completely forgotten the initial emotion and shock and all that he has been doing. It will be seen that these confusional escapades are of great interest both from a clinical and a medico-legal point of view. Misconstrued, they may bring upon the patient the most disastrous and undeserved punishment. In the neurological centres near the front-line numerous examples may be found. Such cases may be under trial by court-martial and a mental examination by a specialist ordered.

The **hystero-emotional psychoses** (H. Claude, Dide, and Lejonne) belong to this group of cases. Here, again, emotion is the basis of these mental disorders, an intense emotion, sometimes accompanied by a feeling of imminent death and maintained by the tragic and terrible scenes of the battle.

The special feature of the psychical condition of patients suffering from these psychopathic disorders is that between the bouts of excitement, no real mental confusion is detected. The patient can speak and reply to questions with great ease. But if one reminds him of some episode in the fight or brings back some recollection or idea associated with it, he is at once overcome by emotion; he again pictures the scene he has lived through, sees "Boches," throws himself under the bed to shelter from the shells, or runs ahead towards imaginary trenches. The thud of a distant cannon or some metallic noise will often be sufficient to provoke an emotional attack with all the phenomena of onciric delirium. In such cases the psychological state is characterized by the suddenness of the emotional reactions and their short duration, the absence of systematization

of the emotion and of any dominant delusion and lastly, by the complete integrity of the intellectual processes in their strict sense.

They are purely psycho-neuropathic disorders, analogous to paralysis, contracture and mutism, and as such they recover rapidly, never leaving any sequelæ whatever. There remains only the constitutional condition of emotivity, owing to which the hypnosis of battle (Milian) and the hysterio-emotional psychoses can be produced.

It may be a matter of surprise that we have classed in the same group the oneiric delirium of mental confusion and the above conditions. But without entering upon a controversial discussion, we will only mention that Régis long ago pointed out that in reality the oneiric delirium of toxic or infective origin is itself a true somnambulistic condition; that both toxic oneirism and hysterical somnambulism are followed by a retro-antegrade amnesia, clinically identical in the two cases; lastly, that both in toxic delirium and in hysterical somnambulism it is possible by suggestive hypnosis to bring back the lost recollection of the attack.

Thus we consider that the post-emotional or post-concussion form of mental confusion should be ranged in the same class of psychoneuroses as the motor disorders and the affections of the senses and sensation, since they both have the same etiology, the same psycho-pathological basis, the same prognosis, and demand the same methods of treatment.

DIAGNOSIS OF THE PSYCHICAL DISORDERS.—The identification of the various psychopathic affections we have described is not a matter of much difficulty. The distinction between the various comas and narcolepsy, between true psychoses and somnambulistic delirium, is not very hard to draw.

The differential diagnosis of confusion or oneirism of toxic or infective origin and so-called hysterical confusion or oneirism is not such an easy matter.

As we have shown, Régis has pointed out the clinical analogy.

In actual practice the purely psycho-neuropathic manifestations are most likely to be confused with alcoholic delirium or the organic stupor of those suffering from profound cerebral disturbance.

Since from the purely psychical point of view these conditions are very similar, it is evident that the distinction must be based on the associated phenomena rather than on the mental symptoms. In the case of a toxic or infective delirium, the motif of the delirium itself is less coherent, less systematized (Ballet), and the confusion occurs in the periods intervening between the oneiric paroxysms; it is seldom that some sign of intoxication is not found as the causal factor, generally alcoholism (tremor of the hands and tongue, inequality of the pupils, abnormality of the reflexes and sensation, etc.).

In the case of a patient suffering from cerebral concussion in whom the condition of torpor and stupefaction is due to actual changes in the brain, one will find definite organic symptoms due to disturbance of the central nervous system by the trauma (Babinski's sign, increase or decrease of tendon reflexes, increase of albumin in the cerebro-spinal fluid, with or without leucocytosis). All these have been fully described by Guillain, Oberthür, and du Roselle.

The very course of these manifestations gives a clue to their nature. While toxic symptoms or those due to true cerebral disturbance are slow to disappear, the purely psycho-neuropathic manifestations, so singular in their behaviour, yield with ease to judicious treatment.

We will only mention in passing a mental condition described by Schaïkievitch after the Manchurian Campaign to which he gave the name *amentia depressido-stuporosa*. This is really only a typical mental confusion in which ideas of auto-accusation and persecution are mixed and which, like the confusion

we have just studied, takes origin in an emotion or concussion.

Can we proceed further with the diagnosis and, after clinical examination, define the exact origin of the confusional condition? G. Ballet and Roques de Fursac maintain that in the "so-called commotional psychoses" the part played by the physical shock is negligible, that by the emotion essential. The principal point on which these authors base their statement is that pure emotion without any physical element can accurately reproduce in form, intensity and course the psychopathic disorders attributed to concussion. G. Dumas does not agree with this view. He points out that cases due to emotion do not lose consciousness and do not exhibit mental confusion until several hours after the incident, while those due to concussion lose consciousness in 95 per cent. of cases.

This statement is correct enough, but, as he himself has observed, though the loss of consciousness may be attributed to the physical shock, this does not exclude the possibility of an intense emotion interposed between the moment of the explosion and the loss of consciousness, an emotion which has unloosed the confusional state.

At any rate we can state that, in the immense majority of cases, confusion due to concussion *plus* emotion (*commotion—emotion*) is not accompanied by any apparent wound and does not present any symptom of a lesion of the brain or cord; this distinguishes it from the cases of confusion due to concussion (*commotionnés*), which, as we have said, behave quite differently.

It would be going too far to deny that the shock of concussion may slightly affect the brain and thus somewhat reinforce the predominant effects of the emotion.

§ 3. PSYCHICAL DISORDERS IN CASES OF
CEREBRAL CONCUSSION*(Commotionnés cérébraux)*

The purely mental disorders included in the psychoneuroses of war have an almost exclusive origin in concussion and the emotion which it produces. Most physicians who have studied this question have asked themselves which one of these two factors is the real basis of the complaint.

The question is important; for if stress is laid on *concussion* as the pathogenic basis, the necessary conclusion drawn is that there are more or less important changes in the substance of the brain, changes of a unique nature and well known in present-day experimental pathology. The position is quite different if we ascribe the pathogenesis and etiology of these disorders to *emotion*. We are, of course, ignorant of the nature of the changes in the mental elements produced by emotion; but we know that they often disappear very quickly under purely moral and psychical influence, and that if there is any change, it is certainly very different from that produced on the brain by "traumatic" shock.

In point of fact *there are two forms of psychical disturbance following concussion*; one dependent on actual changes in the brain, the other, which may be described as functional and which belongs to the group of psycho-neuropathic disorders.

We by no means infer that the clinical diagnosis of these two groups is always easy; however, in most cases it is possible to draw the distinction.

As we have seen, the immediate mental disorders following concussion are revealed in the various forms of mental confusion, with or without delirium.

These confusional conditions, which often present a clinical aspect betraying their emotional origin and disclosing their psycho-neuropathic nature, may completely resemble toxic confusion, except

that no visceral or nervous symptom can be found to indicate an intoxication. As we have already stated, the differential diagnosis of emotional confusion and that of toxic or infective origin is based more on the associated symptoms than on the character of the mental phenomena. As regards confusion of traumatic origin due to actual lesions, the differentiation of this from analogous phenomena of a neuropathic origin is a still more delicate matter. Moreover, it is quite rare for traumatic lesions of the brain to be followed exclusively by disorders of a purely psychical nature.

Careful examination will reveal changes in the tendon and cutaneous reflexes and in the respiratory and circulatory systems, which are never found in true neuropathic conditions. In addition, if one takes into account the existence of changes in the cerebro-spinal fluid (increase of albumin, leucocytosis, xanthochromia), it is seen that there are a number of signs which will at any rate assist diagnosis. Failing all other methods, the course of the affection will clear up any doubt. Rapid and favourable in psychoneuropathic confusion, it is, on the contrary, prolonged in toxic and traumatic confusion, leaving *sequelæ*, the origin of which must be carefully considered in view of deciding on the military status of the patient.

These *sequelæ* are both psychical and physical and are found, with slight variations, in severe cases of concussion. The chief are : persistent headache, especially during the day ; photophobia, labyrinthine and cochlear hyperæsthesia causing vertigo and painful reverberation of sounds, localized or generalized hyperæsthesia, insomnia, bad dreams or nightmares, and lastly, in the psychical sphere, dysmnnesia, slowness of ideation, a tendency to depression and melancholia and a highly-emotional condition. The last few phenomena are part of the syndrome described under the name of traumatic neuroses, which we must briefly discuss.

Under the title of *Traumatic Neuroses*, Oppenheim has described a symptomatic picture made up of various elements chiefly of a hysterical and neurasthenic nature, and which he ascribes to slight changes in the elements of the central nervous system, which at present cannot be defined. The traumatic neuroses, therefore, do not constitute a definite pathological group, but rather a complex collection of symptoms, all the details of which we have studied in the foregoing chapters.

But in addition to these symptoms, Oppenheim has shown—and this is the only point of present interest—that very often patients, suffering from what we call concussion, exhibit special psychical disorders of a depressant nature which may reach actual melancholia.

Such neurasthenia-like symptoms are by no means exceptional, and we have often observed them as sequelæ of old-standing cases of cerebral concussion.

The leading features from a psychical point of view are the state of torpor of the psychic activity and the disordered condition of the emotional faculties. Incapable of concentrating on any form of regular work, these patients are ever haunted by the idea of their ailment and the symptoms it has produced.

This constant state of preoccupation leaves its mark on the facial expression, which is melancholy and immobile, always reflecting the constant obsession which hardly ever leaves the mind. They shun society and seem to have lost the power of laughing.

It must be added that most of these patients are tormented by intractable insomnia, or their sleep is always troubled and distorted by dreams of war. These bad dreams and nightmares are often maintained by subjective noises in the ears and by sensory hyper-excitability.

If an attempt is made to stimulate their self-respect, they burst into tears, declaring that they are incapable of undertaking any work and that they

are hopeless invalids. Many suffer from headache, vertigo, dizziness, acoustic and visual hyperæsthesia. Forward flexion of the trunk produces abnormal congestion of the face, vertigo, and a marked slowing of the pulse-rate (Erben's sign). The cutaneous reflexes are normal, but the tendon reflexes are usually brisk.

Changes in the circulatory system are also not of uncommon occurrence: tachycardia when in the upright position (ortho-tachycardia), arrhythmia, instability of the arterial pressure or inequality of the vascular tension in homologous limbs, and dermatographia.

The persistence and intractability of the subjective symptoms makes life so difficult to bear that the condition of neurasthenia gets worse and renders the patient a true hypochondriac or melancholic.

The course of this form of traumatic neurasthenia is always protracted and the condition only improves after a lapse of several months.

In spite of the absence of gross objective phenomena, patients suffering from this condition cannot be sent back to the lines; any who, against medical advice, try to return to the front are soon compelled against their will to acknowledge their powerlessness and have to be returned to the base, for a time at any rate.

§ 4. THE MENTAL CONDITION OF PATIENTS WITH CRANIAL WOUNDS AND AFTER TREPHINING

Although a study of the psychical phenomena displayed by patients with wounds of the head hardly comes within the general scope of this book, we think it advisable to mention very briefly their principal characters, which will be seen to resemble the psychical sequelæ of concussion.

The residual psychical syndrome found in patients with cerebral trauma presents, by common consent,

great uniformity. Its constituent factors—especially obvious—are a feebleness of will-power and voluntary attention, slowness of ideation and rapid weakening of the imagination (Villaret and Mignard). Just as in the concussion syndrome we have described above, this torpor of the higher faculties may be accompanied by an oneiric element and by dysmnnesia or amnesia, or by the sensory and sensorial hyperæsthesia which is so characteristic of organic conditions following concussion.

Both in cases that have previously been trephined and in cases of severe concussion, it is common to find the signs of *œdema of the optic disc* (Cantonnet), a result of the increased tension of the cerebro-spinal fluid, which we have discovered in a large number of cases and measured by Henri Claude's manometer.

This increased pressure seems to play a part in the production of the purely psychical phenomena observed in cases of severe concussion and of local trauma; it is generally absent in patients suffering from psycho-neuropathic disorders due to concussion. It is sometimes accompanied by increase of albumin and exceptionally by an increase of cells of the cerebro-spinal fluid.

Lastly, the residual nervous disorders in cases of trephining are not only out of all proportion to the wound, but often vary inversely in intensity with the extent of the osseous lesion.

This necessarily brief summary will show clearly the points of resemblance between the concussion syndrome and that observed in cases which have been trephined, so that we are justified in uniting these two conditions from the point of view of pathogenesis. In either case, in addition to the psycho-neuropathic phenomena, symptoms may be found, not in harmony with circumscribed lesions, but rather with diffuse cortical changes and, to some degree, with the increased cerebro-spinal pressure.

§ 5. THE "SINISTROSES" OF WAR

Under the name *sinistrose*, Brissaud has described a psychopathic condition peculiar to workmen's accidents, characterized by a pathological state of restlessness resembling a systematized delirium, based on an idea of unjust treatment.

In some ways the mental condition of the wounded very much resembles that of an artisan injured at his daily work—uncertainty as to his military status, anxiety as to the sick-pay he will receive, etc. Thus we think that Brissaud's expression may be extended to include a psycho-neuropathic disorder quite common amongst our soldiers under the name of the "sinistroses of war."

It commences at a time when the wound is almost healed. The patient is much better and he realizes the fact; but not finding himself as well as he was before being wounded, he fears the return to the front because he will not be so efficient as he used to be. He is generally troubled by pains which do not suggest any lesion of the nerves, but are rather true psychalgia, further increased by concentration of thoughts on the condition of his injured limb. Depressed, suffering, and sleeping badly, he begins to ask himself if he will ever be well again, and if even in the distant future he will be capable of returning to his occupation or to any work whatever.

In short, it is a condition of hypochondriasis, exaggerated and modified by the predominant pre-occupation of anxiety as to the outcome of the situation caused by the trauma.

It might be thought that if discharge from the army with a pension be obtained all the symptoms of restlessness would vanish *ipso facto*; as a matter of fact, although complete recovery often follows discharge, this is not always the case. But in these instances the symptoms of the "sinistrose" undergo a change and the hypochondriacal ideas of the first phase are replaced by ideas of fresh claims

and demands. The pure "sinistrose" is followed by a psychosis of demand.

The last condition is too well known to need discussion. We need only note that its development necessitates a soil specially prepared by previous deterioration, and that patients who exhibit such an affection have, since infancy, shown symptoms of mental instability and obvious physical and intellectual defects.

They are egoistical and proud. They soon express ideas of persecution and claim honour and greater recognition. Never satisfied with medical examinations and the decisions of medical boards, they continually protest against the rate of pension which has been granted them, and they use every means to obtain the opinion of nervous specialists, who they say and know will recognize the true nature of their infirmity and secure the pension they deserve.

This psychosis of "discharged claimants" is really only the expression of a more or less latent and constitutional mental condition; it is therefore practically incurable, but the grosser phenomena it displays may be mitigated to a certain extent.

CHAPTER X

NERVOUS DISORDERS INDUCED BY THE EXPLOSION OF A PROJECTILE AT A SHORT DISTANCE

THE SYMPTOMS OF CONCUSSION (*Accidents commotionnels*)

THE explosion of a projectile close at hand plays, as we have seen, an important rôle in the etiology of all the neuropathic disorders we have reviewed. In the vast majority of cases it is the origin of the disorder and is quite the most important etiological and pathogenic factor. Therefore, although they differ widely in their mode of expression—possibly also in their nature—the most diverse nervous or psychical manifestations are linked together by a common bond and can be classed together in a common group under the name of concussion disorders or the “concussion syndrome.”¹

¹ Under the name of “syndrome commotionnel” of the traumata of war, Mairét and Piéron describe a syndrome which includes :

(1) Sensory disorders, chiefly hypæsthesia or anæsthesia affecting all forms of sensation—amblyopia, deafness, apraxic amnesia, cutaneous and deep anæsthesia—and special forms of hyperæsthesia (neuropathic *points douloureux*, vibratory hyperæsthesia, osseous hyperæsthesia, etc.).

(2) Motor affections, such as increased reflexes and convulsive fits or functional paralysis.

(3) Vaso-motor and splanchnic affections (especially headache and vertigo).

(4) Emotional phenomena (predominance of sentiments based on the emotions, such as fear or anger, and dissemination of altruistic sentiments).

(5) Associated disorders such as amnesia and apraxia (of which mutism is the commonest type), intellectual inertia, automatic

Thus the cerebral or medullary concussion of classical description, until now rarely diagnosed and still of disputed pathogenesis, again comes into its own. Its scope is extended to include cases of the most diverse nature, having only the conditions under which they occur as a common bond. The word concussed (*commotionné*) is to-day so commonly used that it has passed into the vocabulary of the lay public, and is even an everyday term amongst the soldiers.

What do we really understand by "concussion symptoms," "*commotio cerebialis*," "nervous shock"? What is the nature of these disturbances? Are they symptoms of a physical or organic type, caused by the shock or by the atmospheric vibrations of the explosion? Or are they disorders solely of a dynamic or functional nature? In either case, can we discover the "why and wherefore"? Such are

hyper-excitability of the imagination (nightmare, hallucinations, hallucinatory delirium).

(6) Lastly, disorders of the function of apprehension (amnesia of fixation, incapability of fixing the attention).

We do not adopt Mairét and Piéron's description, which seems altogether too cumbersome and inexact. One or more of the phenomena described may, of course, be observed in shock, but the whole series is never present in one case. Thus, it hardly represents a clinical syndrome in the strict sense of the word, but rather an enumeration of the series of psychoneurotic disorders that these patients may display.

Clovis Vincent distinguishes three categories:

- (a) Emotional symptoms.
- (b) Symptoms of concussion.
- (c) Mental symptoms.

He regards these as three types which each confer special and distinct characteristics on the patient.

The man who is suffering from emotional symptoms is one who has not lost consciousness; he is able to flee from the cause of his fear.

The man under the influence of concussion-phenomena becomes completely unconscious at once, and remains so for a fairly long period. He remains near the spot where the explosion has occurred and has to be carried away.

The man exhibiting mental disorders is like neither of these. He

the questions which we are going to try to answer in this chapter, given over to a summary, having before us the large number of facts which neuropsychiatric observation has supplied during the present campaign. We are here in touch with a most interesting problem, both on account of the theoretical questions which it raises and the medico-military importance it presents. This interest is shown by the many discussions which have centred round it; one by one, partisans of both the organic and inorganic theories have been compelled to recognize a single, unique cause as the basis of these "commotional" disorders.

As a matter of fact, if the points at issue are catalogued and every preconceived idea put aside, on final analysis it is found that the differences of opinion are, perhaps, more apparent than real. It

is not unconscious, as he stands up, walks about, sometimes shouts and struggles. He is not a prey to emotion, for he is often mentally inert and affected by complete mental confusion.

This seems too rigid a classification, and does not accord with the observations which Boisseau and one of the present authors have made in a very large series of cases in a Field Neurological Centre during offensive operations.

We found that the emotional, concussion and even the mental types were generally not sufficiently distinct enough to allow of their differentiation.

Lastly, Georges Guillain has described a syndrome following the explosion of a large projectile without causing an external injury, which he describes as follows:

The patient suffers from profound asthenia, which necessitates rest in bed for the first few days; walking is impossible, but later can be performed, though with ataxia, even of the upper limbs. The physical asthenia is accompanied by a psychical asthenia: all the psychic functions are slow (memory, association of ideas, etc.). There is often tremor of the fingers, lips, etc., and dizziness with phenomena of voltaic vertigo. Changes in the tendon reflexes and bradycardia or tachycardia may be found in the early stages. Lumbar puncture shows that there is no alteration in the cerebro-spinal fluid.

The elements of this syndrome may or may not be associated with direct lesions (auricular disorders, deafness, etc.).

These nervous affections tend to progressive recovery.

is owing to a misunderstanding of the exact meaning of the terms *concussion*, *organic lesion*, and *functional disorder*, and also according to where the cases are observed (front line, base, etc.), that these differences of opinion have arisen.

§ 1. CLINICAL DESCRIPTION OF NERVOUS CONCUSSION, COMMOTIO CEREBRALIS. NERVOUS SHOCK

These make their appearance in soldiers of every age, in the younger classes just as in the home-service men of riper years, in men with previous constitutional neuropathic traits or with such tendencies acquired during the campaign, and in which hyperemotivity plays a prominent part; lastly and more rarely, in men without any predisposition. Sometimes the shock is observed as a result of the first bombardment in a man who has only recently taken his place in the trenches; sometimes, on the contrary, in men hardened to shell-fire by many months of fighting. We shall repeat here all we have said with regard to the origin of nearly all the other psychoneuroses of war.

The predominant factor, however, in the causation of nervous concussion is the determining rôle of the various violent explosives—subterranean mines, aerial torpedoes and mine-throwers, large projectiles which, with a tremendous din, cause a violent displacement of air and of soil. Shock is also observed, but much less commonly, following the whistle of shot alone or the rattle of the 77's.

From a clinical point of view, the symptoms of concussion (commotional symptoms) may be arranged in three chronological groups, according to the time and place where they are observed:

(1) *Immediate Symptoms*, of the battle-field and front-line trenches.

(2) *Early Symptoms*, in the field-ambulance or field-hospital.

(3) *Late Symptoms*, in the general hospitals at the

base and the neurological centres of the interior. The two latter, with slight distinctions, often merge into one another. It is obvious that this classification is quite arbitrary, varying with the military position, which necessarily modifies the system of evacuation. It has the merit, however, of pointing out the variation of the clinical aspect according to the place of observation, a point which has not received sufficient attention. Just as in the surgery of the war, there is a neurology of the front-line and a neurology of the base.

1. *Immediate Symptoms*.—Convulsive attacks or epileptiform fits are seldom witnessed under the fire of the enemy, but when seen, they occur in the depths of a trench or in a sheltered position; they often commence at the onset of a bombardment, while a position is being established.

When there is an advance, the patient runs to the rear-lines and makes straight for a first-aid post or dressing-station.

To quote from du Roselle and Oberthür :—"On a certain day of violent bombardment, several men suffering from 'shock' come rushing pell-mell to the first-aid post; they have no apparent wounds, but are haggard, and stagger as they rush in; not one of them can reply to any question that is put to them, and they recognize nobody. One of us approaches the man who seems in the worst plight and tries without success to bring him to his senses, then leads him by the arm to the first-aid post so as to examine him at leisure. Just as the patient is going to pass in, he notices the recent marks of a shell which has penetrated the wall. He immediately draws away and starts to argue—"No, Major, I don't want to go in there, it is under shell fire now; it wasn't so yesterday"—and he cannot be made to advance a step. Left to himself, he and his unfortunate comrades lie prone in a little blockhouse that has been built to shelter wounded

during the bombardment, pending an opportunity to evacuate them. These men lie there trembling and cowering, not replying to any question and apparently incapable of any voluntary act. There is no need to explain to them when the vehicles arrive; they understand at once; they climb in without help, perfectly naturally. The journey is accomplished without incident."

These symptoms are very different from those which mark direct concussion of the central nervous system, the result of the shaking of the cerebro-spinal axis by the patient being thrown to the ground, against the trench-parapet, or, as frequently happens, by temporary burial.

This direct concussion finds its extreme expression in the sudden death which, as we know, is unfortunately not uncommon.

Grave cerebral disturbance is shown by immediate loss of consciousness and complete coma of the cerebral type, with muscular relaxation and abolition of the cutaneous and tendon reflexes. The limbs are in a hypotonic condition. Babinski's sign may even be obtained, and also Pierre Marie and Foix' contraction sign with an exaggeration of the defensive reflexes.

In less severe cases only a transient loss of consciousness and amnesia are observed; the man is able to get to the first-aid post, held up by the stretcher-bearers.

If examined at once the face shows special characteristics: labial commissures depressed, paresis of the tongue, ptosis with external ophthalmoplegia, mydriasis, and inequality of the pupils and nystagmus.

As in the previous form, the muscles of the limbs and the trunk are hypotonic and the patient cannot either stand or sit without assistance. When lying down, he often makes asynergic and clumsy gestures.

In spite of their dramatic appearance, which would justify a very reserved prognosis, these symptoms

of shock die away quite rapidly and do not call for an immediate evacuation to the base (du Roselle and Oberthür).

2. Early Symptoms.—These are the symptoms observed some hours or days after the trauma, in the various hospitals at the front, and particularly in the army neurological centres. We shall only briefly recapitulate them, on the basis of the numerous cases that have come under our personal observation, as they have all been studied in detail in the first part of this book.

From a purely clinical standpoint, setting aside for the time being the question of pathogenesis, the cases of shock which arrive at the field-ambulance present three principal types; these, needless to say, are sometimes merged one into another.

A. Shock of Psychopathic Type.—This is the most common. The symptoms point to a condition of mental confusion in its slight, moderate, or severe forms: *simple mental confusion*, cerebral dulness, dysmnnesia, disorientation in time and space, with constant and often intractable headache and occasionally a rise of temperature; *hallucinatory mental confusion* (oniric delirium), and *stuporous mental confusion*, with torpor, mutism, and pronounced lethargy and stupefaction. These may be accompanied by psycho-sensory disorders (deafness or deaf-mutism) or by psycho-motor affections (convulsive attacks, tremor, paralysis, etc.); but the dominant feature of the clinical picture is the psychical disorder—*mental confusion*; this it is that determines the treatment.

B. Shock of Neuropathic Type.—In this group we include the patients who exhibit predominant symptoms of a purely neuropathic type, without any trace of a confusional state at the time of observation. The latter may, of course, have existed

some hours previously in the form of hebetude or incomplete obtusion which has disappeared, leaving nothing more than slight amnesia or lacunar dysmnnesia (failure to bring to mind the cause of the trauma). In other cases there is no appreciable external disorder, the patient has not lost consciousness and he can give a fluent and detailed account of the accident which brought him to the field-ambulance; if he cannot speak, he writes an account of it. This is why we find it difficult to agree with Dumas that a confusional condition is necessarily the basis of all neuropathic disorders following concussion. In short, we have here examples of the classical type of *traumatic psychoneurosis* or *traumatic hysteria*.

Any one of the long series of symptoms described in previous chapters may thus be encountered; we will only enumerate them here in the order of frequency with which we have observed them:—affections of hearing and speech (deaf-mutism, deafness, mutism, aphonia, stuttering), tremors, choreiform movements, convulsive attacks, paralytic motor disorders (monoplegia, paraplegia, hemiplegia), contractures (curvature, acro-contractures), disorders of the gait (astasia-abasia, staso-basophobia), diffuse or localized pain, affections of the sphincters, and lastly, neurasthenic or psychasthenic conditions.

Abnormalities may or may not be found when the reflexes are tested or the cerebro-spinal fluid examined. The tendon and bone reflexes may be normal, feeble, or more often rather brisk but not really exaggerated; the cutaneous reflexes show the same characters. As regards the cerebro-spinal fluid, increase of albumin may be present (Ravaut, Guillain, Leriche), but is rare (Roussy and Boisseau, Claude), and lymphocytosis is quite exceptional; on the other hand, increased pressure is frequently observed, tallying with the headache, when lumbar-puncture is a valuable method of treatment.

These observations with regard to the cerebro-spinal fluid apply to patients of both groups (*A* and *B*). In none of these cases, apart from the increased pressure and slight increase of albumin in the cerebro-spinal fluid (which is not constant and is of very debatable semiological value), is any single feature discovered which might point to an organic change in the nerve centres.

Clinically, on the other hand, they all fall into the group of psychoneuroses which we have defined at the commencement of this volume.

C. Shock of Organic Type.—This third group includes the cases in which the concussion is followed by signs of lesions of the brain, cord, or meninges. These are clear, indisputable, and more or less permanent signs, shown by disorders of motor, sensorial, sphincteric, or reflex nature, and by changes in the cerebro-spinal fluid—changes in the cells or proteins and xanthochromia—due to meningeal or cerebral hæmorrhage, hæmatomyelia, encephalomalacia or myelomalacia, etc. Whether these disorders be slight or severe, they persist either permanently or, at any rate, for a long period, and thus stand out in contra-distinction to the two preceding groups, which are always transient and quickly cured.

3. Delayed or Chronic Symptoms.—These are the psycho-neurotic sequelæ, which concussion symptoms leave behind them. Besides all the nervous effects described in the preceding paragraphs—symptoms which are seen as often at the base as at the front—these are some which by their chronicity little by little change their clinical type. We refer to the *nervous sequelæ following concussion* and the *sinistroses of war*.

The former are common, and the long duration of the war has brought them into prominence. They consist of headache which is often intractable

and unrelieved by analgesic drugs, and particularly of disorders of a psychopathic nature: such as change of character, persistent dysmnnesia, the psychasthenic state, excess of emotion, and various forms of terror and fear, which cause men previously brave and courageous to lose all self-control and make them unable to take their place in the trenches, which until then, and during all the campaign, they had occupied without flinching. If they are sent back to the firing-line, the slightest cause produces a relapse. They are true "psychical invalids." These facts are valuable from the point of view of deciding upon the right course to pursue.

Of still greater importance is the "fixation" of neuropathic symptoms. The patient acquires a peculiar mental state which, by analogy with that described by Brissaud in workmen's accidents, has been described under the name of "Sinistrose of War." We have already discussed this condition (p. 137).

§ 2. NATURE OF THE NERVOUS CONCUSSION (*Commotion*)

We have already observed that the pathogenesis and nature of the symptoms due to concussion have been much discussed during the last two years. A rapid review of the publications that have appeared will show us the different phases through which this subject has passed.

Ravaut, Heitz, Guillain, Sollier, Chartier, and others have attempted to ascribe most of these symptoms to an organic lesion of the central nervous system, a lesion induced by atmospheric decompression, the result of an explosion.

Then there came a reaction to this view, when it was shown (Roussy and Boisseau, Claude and Lhermitte) that these central organic lesions, far from being frequent, are of exceptional occurrence, and that in most cases the symptoms of shock are

due to an inorganic, functional, and transient disturbance which can rapidly be cured by psychotherapy.

Lastly, at the debate which took place recently at the Neurological Society of Paris (April 1916), it was decided that a division must be made and that two varieties of concussion symptoms exist, which differ as much in their cause as in their nature. There are in reality cases where at the moment of the explosion, soldiers are contused by the giving way of the ground and the throwing up of earth—*direct concussion*, and other cases in which nervous symptoms appear which cannot be traced to external trauma—*indirect concussion* (Claude, Roussy).

A. DIRECT CONCUSSION—EVIDENCE OF CONTUSION.
—It often happens that at the time of explosion of an aerial torpedo, a shell, or especially a mine, men are buried by the giving way of a trench-parapet, a blockhouse, or a dug-out, or are struck by fragments of earth or stone, or may be thrown violently to the ground. As well as being concussed (loss of consciousness), they are bruised. These facts often remain unobserved, since the patient himself can give no information of the course of events. He honestly believes that it was the atmospheric disturbance of the explosion that caused the shock; or he may have no views on the subject, as he has lost consciousness and suffers from retrograde amnesia as regards the explosion itself. But if careful inquiries are made of the occurrence, if necessary from his comrades who saw what happened, the above causation will prove correct. Now it is under such circumstances as these that the immense majority of cases of shock due to organic lesions occur, arising from areas of softening or hæmorrhage in the brain or cord, or meningeal hæmorrhages.

In short, the displacement of air and escape of gas from the explosive only have a secondary, indirect action on the nerve centres; it is this that causes the fall and burial of the men and accounts

for so much external contusion, especially of the head and spine. It is the indirect shaking of the central nervous system which produces areas of softening or hæmorrhages. Claude and Lhermitte have recently made careful anatomical and clinical observations of these still little-understood cases of indirect ischemic lesions of the central nervous system due to trauma of the neighbouring structures. In any case, such lesions cannot possibly be caused by changes of atmospheric pressure and cannot be identified with those produced by émission disease.

We must repeat that such lesions are rare. The shock is followed usually at once by grave psychic phenomena—amnesia, severe headache, vertigo, etc. For the rest, there are the classical signs of cerebral concussion, fully known and described before the war.

Lastly, it is possible, but must be extremely rare, that contusion may be produced by the atmospheric disturbance alone, acting as an external shock, particularly in enclosed spaces.

B. INDIRECT CONCUSSION—EVIDENCE OF DISTURBANCE.—In these cases, on the contrary, no external shock is in question, but it is a matter of indirect concussion at a distance.

When the patient is questioned (if he has not lost consciousness), this comes out very clearly. And frequently—as we have ourselves seen and must again insist on—it is only after a lapse of time, after safe arrival at the first-aid post, that the symptoms of shock come to the surface. It is to this category that the psycho-neuropathic disorders belong, the nervous phenomena with which we are specially concerned and which may assume the most diverse symptoms, and numerous forms of which have been described. The rapid recovery under psychotherapy is a clear proof of their neuropathic nature.

The pathogenesis of these disorders is a psychic, not a physical, disturbance; the morbid condition

is thus ultimately ascribable to an emotional shock and the various psycho-pathological factors which we have already discussed.

To sum up, we see that there are two great varieties of nervous shock, differing from one another both from a pathological and anatomical point of view :

1. *Symptoms of contusion* (direct concussion), dependent on a lesion of the central nervous system, which may be circumscribed (rare) or diffuse (common); this is produced by a direct physical jarring upon the osseous walls of the brain and spinal cord (fall, trauma, etc.), and in which the atmospheric disturbance of the explosion only plays an indirect part.

2. *Symptoms of disturbance* (indirect concussion), which depend on a purely psychical pathology (psycho-neuropathic disorders), and are not accompanied by any known signs which could point to an organic disturbance of the central or peripheral nervous system (Roussy and Boisseau).

In the latter group may we not be dealing with minute cellular or fibrillary lesions of the nervous centres ? This is possible but not demonstrable. Viewed in the light of our present knowledge it is quite impossible to say what anatomical or dynamic changes answer to the various neuropathic or psychopathic conditions.

CHAPTER XI

GENERAL ETIOLOGY

IN the various chapters dealing with the individual psycho-neuropathic conditions we have already indicated the etiological factors at work. We must now briefly return to these from a more general point of view and discuss the causes which are common to all the psycho-neuropathic disorders.

The chapter on the general outline of the psycho-neuroses also contains a résumé of the mode of action of the determinant factors, such as we understand them to be.

§ 1. PREDISPOSING CAUSES

Since predisposition should be considered in discussing the etiology of every disease, this is doubly necessary in the case of the psychoneuroses, where it occupies such an important place.

Although its scope is difficult to define with accuracy, it is quite certain that a *neuropathic constitution*, hereditary or acquired, is a potent factor in the causation of these disorders.

This constitutional tendency does not remain absolutely latent, like that of the psychoses, which suddenly appear without any previous premonitory signs; but it shows itself, unobtrusively it is true, in certain circumstances of life, which bring into play the emotional reactions of any one of us.

This psycho-neuropathic constitution of which we are speaking seems, if not the most commonplace, at any rate the most frequent. It may reveal itself by two modes of expression: those of an *emotional*

nature, an exaggerated expression of the psychical and physical reactions of the emotions, and those of a *hysterical nature*, the essential characteristic of which is the faculty of *dissociation of the psychical functions* and the prolonged "*fixation*" of the disturbance of a function.

As we have pointed out, careful cross-examination of patients suffering from a psychoneurosis will reveal a latent tendency to these abnormal manifestations of an emotional or hysterical type, which the intense emotions evoked by war have considerably increased and rendered actually pathological.

Thus we believe that of the patients exhibiting psycho-neuropathic affections, the vast majority are predisposed; this predisposition may be hereditary or constitutional, or date from childhood as the result of lack of the necessary education.

It is clear, however, that constitution is not the sole predisposing factor. We must not overlook the causes which make for an enfeeblement of psychological "tone," many of these dependent on the war itself.

The depressant action of *physical or mental fatigue* is undeniably at work; it is a matter of common knowledge that psycho-neuropathic disorders frequently occur after a prolonged bombardment, which has demanded a considerable expenditure of energy.

Further, although it plays a more modest part, we must not omit to mention the *temporary shortness of food*, which often occurs in an isolated body of men to whom supplies cannot be sent and who have to live on their reserve-rations. The factor of *starvation* has always been considered as an important element in the psychoses of war; we do not think that any of the allied troops in the West have ever suffered from starvation, but it is true that certain units have for a short time had to exist without fresh food and drink. This shortage of food may have had its effect in the production of neuropathic and delirious symptoms.

To this shortage of food and drink we must add the various *intoxications*, in which *alcohol* takes first place.

We are inclined to lay too little stress on the results of alcoholism not only amongst troops behind the firing-line, but also amongst the actual combatants. Fatigue and lack of occupation partly account for the "charm of the cup."

Although excess of alcohol but rarely leads to the commoner symptoms of alcoholism, it is a potent factor in the promotion of psycho-neuropathic disorders. As is said of tuberculosis, we may also say that in many cases alcohol "prepares the bed for the neurosis."

We ourselves have observed many cases demonstrating the connection between alcohol and hysteria both at the front and at the base. In many cases one has seen a fit of hysteria major follow a slight excess of alcohol.

We cannot lay too much stress on the danger of abuse of alcohol, not only because of the toxic conditions which are its peculiar property, but also because intoxication, by damaging the central nervous system, makes it so much the more sensitive to the emotional shock of war and causes it to react to an excessive and extravagant degree.

The influence of other toxic conditions—especially excessive smoking—is much more difficult to assess, owing to frequent association with alcohol. We cannot find any real evidence that it increases the toxicity of the latter.

Is there any etiological factor to be found in the *previous occupation*, the *social status*, or the *military position* of the soldier, favouring the psychoneuroses? Without being able at present to give a very precise answer, the few facts in our possession, apart from our personal observations, allow us to give a few general indications.

Previous occupation and social status in themselves do not militate for or against these complaints.

We have observed neuropathic disorders in men in almost every walk of life.

Nevertheless, the professions which require the exercise of judgment and criticism, and which demand a sustained effort, both physical and mental, not only do not favour the occurrence of neuropathic affections, but clearly militate against them. H. Claude has observed that it is rare to find such disorders amongst skilled officers, especially medical officers.

It is true that in the case of an officer, it is not only his critical faculties and powers of judgment that are at work in holding the emotional reactions in check, but also the knowledge of his responsibility and the good example he must always show. The officer is not a unit which may be lost in a large group, but he has an individuality on which all eyes are focussed, and his own *amour propre* prevents him from "flinching" under any pretext whatever.

This mental steadiness of the officer has a bearing not only on the individual himself, but also acts as a stimulus to the soldiers under his command. Thus, as several officials in the medical services (Dide, Clunet), have pointed out, the infrequency of such affections in the *troupes d'élite* is accounted for by the stimulant influence of the high morale of the commanding officers.

§ 2. EXCITING CAUSES

We have already seen that the four principal determining causes of the psychoneuroses are *concussion*, *local trauma*, *emotion*, and *suggestion*.

Shell concussion may be direct or indirect. By *direct concussion* we understand any pathological condition of the central nervous system caused by physical shock affecting the osseous walls that surround the encephalo-medullary axis. Whether the individual has been thrown to the ground, into a trench or against the wall of a dug-out, or whether

a shell, bullet, or any other object has struck the skull or vertebral column, the result is the same: a shaking of the nervous system.

Indirect concussion is quite another matter. If there is any actual disturbance of the cerebro-spinal system, it is produced by atmospheric vibrations which are transmitted to the brain and spinal cord by the movements of the cerebro-spinal fluid, which receives either the effects of the tympanic disturbance or the sudden change of arterial tension.

Direct concussion, though a cause of psycho-neuropathic disorders, often produces organic lesions of the nervous system; indirect concussion, on the contrary, produces neuropathic symptoms practically exclusively.

What share does *emotion* take in the etiology of psycho-neuropathic disorders? This is a question which at present cannot be answered with accuracy. A glance at the discussion which took place at the Societies of Neurology and of Psychiatry in 1909 will suffice to show how divergent the views of various authorities really are.

Has the war solved the question by bringing any really demonstrable evidence to bear? We think not, at any rate up to the present.

We are strongly of opinion, and have already insisted on the point, that the rôle of the emotions in the determination of the psychoneuroses is fundamental and primordial. Much more than shock pure and simple, emotion is itself able to produce a neurosis or to localize and fix on some part of the body the psychological disorder, which is the very basis of the neuropathic phenomenon.

The reply may be made that frequently concussion and emotion are both at work and that it is almost impossible to separate these two factors. We cannot agree with this. Concussion pure and simple, unaccompanied by any emotional element, rarely gives rise to neuropathic symptoms. The latter

may certainly follow concussion; but either the shock has only been relative and not entailed loss of consciousness (and thus may have been accompanied by emotion), or the neuropathic manifestations have not been produced immediately but only after an intercalary phase of retrospective emotion or suggestion.

Local trauma must be considered along with general concussion.

It plays a most important part; it is not only capable in itself of creating a neuropathic manifestation in a predisposed individual, but it also constitutes the agent of fixation or crystallization of a neuropathic condition which, until this time, has been latent and indefinite.

Local trauma acts in various ways in producing marked alterations in the motor and sensory functions of some region of the body. It acts first by creating an *emotional state* which throws its weight and intensity into the circumstances of the combat; secondly, by suggesting to the mind of the individual, under cover of the emotional mental asthenia, the idea of a disorder of some bodily system far greater than any that could be caused by the organic mischief produced by the trauma.

It is known, for example, that shock to a limb caused by a projectile of high velocity may immediately produce a "stupor" of the nerves and a transient, but complete motor and sensory paralysis. In a normal individual this torpor and paralysis disappear rapidly, within the space of a few minutes. It is quite another matter in the neuropathic subject, in whom this impotence becomes fixed and made stable by the action of *auto-suggestion*.

To sum up, we have seen that the two chief causes of a neuropathic disorder or psychoneurosis are first, *emotion* or the revival of an emotion, and secondly, *auto-suggestion*, facilitated by the condition

of mental perturbation originated and created by the emotion.

As regards *exogenous suggestion*, this is frequent, but plays, we think, a more modest rôle than auto-suggestion. *Medical hetero-suggestion* is the most important form. Its influence is most clearly evident in creating disorders of sensation (anæsthesias of various distribution), but it may also be the origin of motor affections. Thus care must be taken never to allow a patient to see or hear a diagnosis of organic paralysis, unless it is absolutely definite and established. The idea of incurability is the more difficult to eradicate from the mind of the patient, the more competent the individual who has made the diagnosis.

Hetero-suggestion from patient to patient is described by all neurologists, ourselves included, as being very rare.

It is possible that hetero-suggestion may play some part by means of the tales and confidences that pass between the patients and which so rapidly spread. We cannot deny the possibility, but its rôle cannot be compared with that either of emotion or of auto-suggestion.

CHAPTER XII

TREATMENT OF THE PSYCHONEUROSES OF WAR

THE treatment of the psychoneuroses of war depends directly on their nature ; being disturbances based upon a psychical foundation, they yield to a rational and persuasive psycho-therapy, such as has been recommended and practised for many years by Dejerine, Dubois, Babinski, and others. As Brissaud puts it, "It consists of the employment of means destined to demonstrate to the patient his will-power and to train what is left of it in the best possible manner." This method has beneficially replaced the old methods of hypnotic suggestion which ought definitely to be rejected.

But the war having infinitely multiplied the number of the psychoneuroses in a relatively short space of time and modified their form of appearance, ought also to bring forth a correspondingly energetic and rapid method of treatment. There is the need for coping with the spreading of neuropathic disorders by mental contagion and for taking suitable prophylactic measures. There is the necessity of arranging for the treatment of these cases, almost all curable, so that they shall be sent back as combatants to their various units. With this object in view, the authorities have arranged for the treatment of all such patients in special departments—the Neurological or Neuro-psychiatric Centres of the interior or the army zones. This arrangement has given excellent results and, in spite of a few faults of detail, has rendered great service both to the patients themselves and to the community.

We have, then, finally to describe the method of treatment and cure of the psychoneuroses. Naturally, every neurologist has his own personal methods, which he prefers to all others because he gets the best results from them ; there are, of course, many methods of procedure, useful in certain cases and certain individuals, some of them rapid methods, some slow. Just as each patient modifies, to some degree, his psychoneurosis in his own fashion and often stamps it with his own individuality, so the physician himself will adopt a personal line in his therapeutic measures. It is, in fact, a question of the personal equation.

The uninitiated will, however, need some guide, some indication as to the course to pursue, when they find themselves face to face with a psychoneurosis, should no expert advice be obtainable. These patients are so often met with in the various hospital and Red Cross organizations in the army zone. A deaf-mute with symptoms of shock, a soldier with tremor, or a paralytic arrives at the field dressing-station, the field-ambulance or casualty clearing-station ; what is to be done with him ? Certain slight neuropathic disorders might be treated there and then to the patients' great advantage, provided that the medical officer of the regiment or divisional ambulance knows how to recognize them. Or a case of some functional nervous disorder arrives at one of the special departments : how should he be cared for ? For this purpose let us consider in order :

- (1) The rôle of the physician.
- (2) The rôle of the patient.
- (3) The environment.
- (4) The methods of treatment.

1. The Physician.—The medical officer plays the leading part ; on him depend to a large extent the results of treatment. Many failures are referable to the doctor. It is, indeed, common to see patients who carry their neuropathy, their tremor, their

spasmodic tic or nervous crises from hospital to hospital, and end by becoming "cured" when they have at last found "their master."

The physician who undertakes psychotherapy should have a strong will-power, for he has to acquire and exert over his patients the influence and ascendancy which are essential if good results are to be obtained. In military medical work, a high degree of prestige is a valuable asset which will much facilitate this form of treatment, in which the physician has to play the double part of "confessor" and "educator." Convinced in his own mind of the curability of the disorder, he must communicate his conviction to the patient, entering into communion, into close psychical contact with him in order to impose upon him his own belief. This must be commenced as soon as the diagnosis has been established, during the first talk with the patient; little by little his confidence will be obtained, his mind mastered and finally conquered, if, as often happens, he shows a certain amount of resistance.

He must speak kindly but with authority, "with a hand of iron in a velvet glove." The probable success of the treatment can often be gauged from the first talk with the patient; when he leaves the doctor's room to go back to the ward, it is easy to judge from his behaviour during the interview whether a cure will be easy or difficult to obtain.

During the course of treatment great patience is needed to avoid losing one's temper, which might entail the dropping of a few unfortunate expressions which the patient will not be slow to utilize as a weapon of defence or offence. It is by no means always an easy task, and all those who have had experience of psychotherapy know that there are days and moments, when one is most successful in treating these patients. Therefore, when no success is obtained during the course of a protracted séance, the best plan is to give up for the time being and try again the following day,

on the pretext of giving the patient a rest. Care must, of course, be taken to isolate the patient in the meanwhile. This method of procedure by short, intermittent séances often succeeds; we adopt it ourselves, and on many occasions we have seen a paralytic leave the room still dragging his legs after him or a mute only speaking with great hesitation, but the following morning on our round found the patient declaring that he had completely recovered, which was actually the case.

The medical officer must also take care not to do or say anything that might give fresh suggestions (in the bad sense of the word) to the mind of his patient. We have already pointed out how common and dangerous such a practice is.

Lastly, care must be taken not to appear to suspect the patient of malingering, during the first few interviews at any rate, nor to be too ready to threaten disciplinary measures, court-martial, etc. These are outside the doctor's sphere and must be reserved for a special class of "patient," and only used as a last resort. We have never found them successful in the psychoneuroses.

The right method is for the doctor to see the patient face to face, to consider him as a neuro-pathic individual and to give him this impression, even though he believes him to be exaggerating or malingering, or under suspicion of either. He must bear in mind the difficulty of diagnosing malingering and only treat as such those who really deserve it. Fortunately it is the exception. To all others—those whose nervous systems have been deranged by the events of war, the "wounded in mind"—the physician must afford opportunity, power, energy or desire to recover, all of which they lack and are unable to attain by their own effort.

We will again insist on the necessity of making a methodical examination of the patient, even when the nature of the affection appears perfectly evident. This remark is far from superfluous; after seeing a

large number of neuropathic patients pass into one institution, one is very much inclined to be biased by a first impression and to accept a diagnosis that has previously been made. A fresh and minute examination, including all the usual methods such as lumbar puncture, X-rays, etc., will correct any false diagnoses that have been made or reveal any association of hysteria with organic lesions; further, it is a most valuable adjuvant in obtaining the confidence of the patient in the physician, who will confirm the curability of his disorder and promise a cure.

Lastly, great importance is attached to the psychological examination; the patient should be encouraged to talk at some length, when his intellectual development may be gauged and his social status estimated, for the most valuable indications for treatment are thus acquired; an individual of low intellectual development will need methods of treatment different from those of an intelligent and well-educated person.

2. The Patient.—All the psychoneuroses are not equally amenable to psychotherapy.

There is a group of patients—the real psychopaths (confusional, melancholic, psychasthenic states)—that must be set apart as belonging more definitely to psychiatry and requiring special treatment, such as prolonged rest, hydrotherapy, etc. Some of these may, of course, recover more quickly.

The others, *i.e.* the psychoneuroses of hysterical or pithiatric type, come within the scope of psychotherapy in the strict sense of the word.

Certain inherent conditions of the patient and the nature of his complaint must be taken into consideration. A new patient, not yet examined or treated, is much more easily cured than one in which the symptoms date back some time. The latter, a confirmed neuropath, often requires special methods of treatment which we shall mention later. The degree

of curability is thus inversely proportional to the duration of the disorder. *Hence the advantage to be gained by treating the patient as soon as possible after the trauma.* This is an axiom now universally admitted.

There are other factors which influence the treatment and should be taken into account.

The nature of the psychoneurosis is of importance : contractures are more persistent than paralysis, tremor and spasmodic tic are more obstinate than other results of shock such as deaf-mutism, etc.

The psychological state of the patient also exerts an influence. It is obvious, for example, that the most telling argument will have little effect on an individual of poor intellect.

Lastly, much difficulty will be encountered in the treatment of patients who even before the war had exhibited nervous phenomena. The *pre-war psychoneuroses* are more intractable than the *psychoneuroses of the war* ; nevertheless, results can be obtained which will render the patient fit for some service.

3. The Environment.—We have seen that the personality of the physician is of the greatest importance as regards the results of treatment, by reason of the moral authority which he exercises ; we have also seen that the psychical state of the patient, the duration and nature of the disorder play an influential part. There is a third factor, no less important—the surroundings in which the psychoneuroses are cared for and treated.

This is clearly shown by the fact that the hospitals near the fighting-front (neurological centres near the front) prove eminently suitable from this point of view. Their only relative degree of comfort, their strict military discipline, their proximity to the front, their remoteness and their inaccessibility to friends and relations all render them specially suitable for this form of treatment and ensure much

easier and quicker cure than in the interior. Two years' observations have fully confirmed this fact, which is now admitted by all neurologists. It is regrettable that the authorities have not been able to arrange a more effective sorting-out of these cases ; a large number, especially at the time of offensive operations, still get sent to hospitals in the interior for months on end.

We do not deny that these patients can be cured in the various neurological centres in the interior, but with what difficulty and how slowly ! Here, the duration of treatment is reckoned in weeks or months, while at the front it is obtained in a few hours or a day.

But the question of situation—near the front or in the interior—though important, is not the only one. A suitable atmosphere and proper surroundings must be created, and this should be particularly easy under military régime.

The discipline, both general and medical, should be severe but just ; the personnel, attendants and nurses alike must be well trained in the right behaviour and bearing towards this class of patient.

On admission the patients will realize that they are going to be in the hands of a physician who can cure them ; but that certain noisy nervous manifestations, such as hysterical convulsive attacks, are forbidden, under pain of a more or less prolonged confinement in a separate room, and that every chronic neuropath is kept strictly in bed on a milk-diet until the symptoms improve. When once this routine is established, cures will follow one another with great rapidity.

It need not be thought that the creation of such an atmosphere and routine is a matter of great difficulty. It can be done in two or three weeks ; we have effected it several times in the course of our work in various departments of the neurological service.

4. **The Methods.**—We must now discuss the treatment of the psychoneuroses. It consists of a psychotherapy which is methodical, firm, and often even imperative ; it includes more or less prolonged conversations, assisted by isolation, application of the faradic current, and re-education.

We may term it the *psycho-electric and re-educative method*, and it may be divided into four stages :

1st Stage. Persuasive Conversations.—The patient has, if possible, been examined on the day of admission. If not, he will have been previously isolated. When the case has been diagnosed, one tries to explain to the patient the nature of the disorder from which he is suffering or believes himself to be suffering (the result of a mental or physical shock, fear, fatigue, etc.), to show him how it has arisen, to reassure him as to its gravity, and lastly to promise him a cure. All this must be done simply, quietly, and kindly but firmly. If opportunity arises, one can encourage him to chat to any patients who have recovered and have not yet been discharged. This “benign contagion” from patient to patient often works well in cases of deaf-mutism and nervous crises, for example.

During the course of this first talk with the patient use is made of methodical suggestion, in the waking state, of course ; this is all the easier to carry out when one has to deal with patients on the lower intellectual levels.

This séance of psycho-therapeutic conversation should take place in the doctor’s consulting-room and not in the ward.

At the end of the conversation one should endeavour to get the patient to say that he really wants to get well and that he will submit to any methods of treatment necessary to that end. The promise is made on oath, and from the inclusion of any conditional clauses or evasions, one is able there and

then to draw conclusions as to the ease or difficulty with which the patient is going to be cured.

The next stage of treatment may be begun on the same day and electrical methods employed. But it is better to proceed methodically and to postpone the latter till the following day, or better still till several days later, during which time the patient is kept in strict isolation.

2nd Stage. Isolation.—The patient is then put in a separate room and kept in bed on a strict milk-diet. Save for rare exceptions, isolation is a valuable or even indispensable aid to psychotherapy and has been a classical method of treatment since the days of Weir Mitchell; we need not discuss it further.

By proceeding in this way by successive steps, isolating the patient for a few days and giving him electrical treatment, several objects are achieved :

(a) The effects of suggestion are reinforced. They are, of course, maintained by short talks with the patient when the daily rounds are made.

(b) The patient is left alone with his thoughts and has an opportunity of thinking over the promises he has made ; it often happens that he will eventually beg for the electrical treatment which at first he refused.

(c) The period of observation is lengthened, allowing time to complete the diagnosis.

Isolation is useful not only as a method of treatment, but it is also a prophylactic measure avoiding all chance of "contagion." There are two degrees : *comfortable isolation* in a separate room, which is adequate in most cases, and *rigorous isolation* in a cell with milk or bread and water diet, to which recourse must sometimes be had.

Often during this second stage of treatment spontaneous recovery takes place. Claudication of long duration, tremor, or deaf-mutism may disappear as if by magic before electrical treatment has been

commenced. We have seen many examples of this. Now we pass on to the next stage.

3rd Stage. Faradization.—Electrical treatment is carried out by the physician alone, only the attendants necessary to support the patient being present.

Position of the Patient.—The patient lies absolutely naked on the bed, where he is first treated in the recumbent position, especially in motor affections of the lower limbs. Afterwards he is treated sitting down, then standing, walking, running, etc.

Apparatus.—The apparatus for faradization supplied to the medical services is the type used; the dry cells may be advantageously replaced by Leclanché batteries, which are connected up in series. A spool of fine wire is used, and as stimulators at first pads, then revolving cylinders, then a metal brush. The current is at first feeble and then gradually increased; the poles are first applied to the affected parts and then, if necessary, to specially sensitive parts of the skin surface (ears, neck, lips, sole of the foot, perineum, scrotum).

Care must be taken to proceed gently at first, pointing out to the patient any contraction of so-called paralysed muscles, comparing them with those of the unaffected limb; then, if needs be, the strength of the current is increased and more energetic measures used. This is the rapid method, indicated in the vast majority of cases, especially at the front. In cases seen early it almost always gives immediate results, and is of special value in psycho-sensorial and sensory disorders due to shock, nervous crises, and most of the psycho-motor disorders.

It really depends on producing a kind of "crisis," which we should try to obtain at the first séance. The latter often has to be continued for some hours, until the patient is finally "mastered." But if this crisis is much delayed and the patient shows obvious signs of fatigue, it is better to suspend operations and continue the following day. This often happens

in affections of long standing ; some patients require two or three séances, some even more than this.

Hydrotherapy.—A cold douche, either as a shower or an unbroken jet of water, may be used instead of faradization to obtain the crisis. We have used it with success in hospitals near the fighting-front in the treatment of recent cases of shock. The same may be said of certain other methods, such as slightly painful subcutaneous injections (ether), which may be used, for want of other means, in advanced posts in the firing-line (Boisseau).

4th Stage. Physical and Psychical Re-education.—This is an important branch of psychotherapy, particularly in cases of long-standing disorders. Most neuropaths (especially in the centres in the interior), when once the crisis has been obtained, need re-education by systematic exercises directed towards the re-establishment of the lost functions—motor re-education, helped by massage and passive movements—in short, the various forms of physiotherapy. This re-education should be carried out by special assistants or head nurses ; it should always be accompanied by psychotherapy and, if needs be, by further electrical treatment.

Re-educative methods of treatment alone, not preceded by faradization, are employed by certain neurologists. Satisfactory results may be obtained, but they are slow and tedious. Adequate enough in time of peace, they by no means meet the necessities of war ; rapid methods are absolutely necessary when one is faced with a large number of such patients, who soon fill up the hospitals and make them literal “ culture-media.” ¹

¹ At the Neurological Centre of District IX., Clovis Vincent has instituted a method of intensive re-education for old hysterical cases, which is carried out in three stages :

(1) *Stage of crisis and intensive re-education.*—This is the stage called “ torpillage ” by the poilu, during which the patient’s

After-Treatment.—After recovery has taken place, the patient should be kept for a time under observation before being sent back to his regiment or to the dépôt. In the course of the daily round he should be watched and assured of the permanence of his recovery. Unfortunately it is not always possible at the front, owing to lack of accommodation, to keep these hysterical cases for an adequate length of time. Premature transference to hospitals in the interior or too early sick-leave are frequent causes of relapse. In hospitals in the interior, on the other hand, these drawbacks are not met with; the patient can be retained, and trained in the centres for re-education.

Results.—In closing, we can say, without exaggeration, that almost all the psychoneuroses of war of hysterical type can be cured by well-conducted psychotherapy.

inertia is overcome, a stage of forcible re-education, effected by the galvanic current. It includes

- A. *Direct Re-education*, in which the patient is compelled to make a movement or perform an action of which he says he is incapable; and *Indirect Re-education*, in which he is led to the desired goal mechanically and without the intervention of his own will (running, for example, to restore the normal automatism of the lower limbs).
- B. *Application of the Galvanic Current*, rising to a strength of 30 or 35 milliampères, employed for a short time only at repeated intervals during treatment.

(2) *Stage of fixation of the progress obtained*, in which various movements, walking exercises, etc., are carried out to maintain the cure.

(3) *Stage of training*, carried out by special assistants over a prolonged period, under the doctor's supervision, before the patient is sent back to active service, definitely cured.

This method has given excellent results, but it applies to a special class of neuropaths—old hysterical cases, which for months, or may be for over a year, have been sent from one hospital to another, and who have never had correct treatment since the onset of the disorder. At the front there are extremely few cases suitable for this method.

With regard to *failures*, of which there are unfortunately many more than there should be, it must be admitted that these are generally due to some fault in treatment: unfavourable surroundings, initial mistakes in diagnosis, too slow methods, lack of interest or time on the part of the physician.

More rarely they are due to the psychical state of the patient himself: obstinacy, ill-will, refusal of treatment.

In one of the Army Neurological Centres during a period of six months we have had a percentage of 98-99 per cent. of recoveries (Roussy and Boisseau).

In one of the hospitals in the interior, specially organized for this treatment, only 2-3 per cent. of failures have been recorded (Clovis Vincent).

The cure of a psycho-neuropath really consists of a mental contest, resulting in the victory of the physician. This, in conclusion, is the secret of psychotherapy.

THE PSYCHONEUROSES AND MILITARY DECISIONS

WE have still to consider the question of the military decisions that have to be made as regards cured and uncured psychoneuroses, a problem that often presents great difficulties of solution.

The heads of the various neurological centres have frequently drawn the attention of the military authorities to this matter and have requested instructions which will lead to a more uniform medico-military procedure.

The Paris Neurological Society had this subject under discussion at their plenary sitting of last December ; we shall give an account of the decisions arrived at.

We must examine the various questions that arise, both in the Neurological Centres at the front and in the interior, according to the two classes of patient :

Those in which the neuropathic element predominates (hysterical or pithiatic), and

Those in which the psychical element predominates.

NEUROLOGICAL CENTRES IN THE ARMY ZONE.—As regards the hysterical type of case, we have seen that in principle all of these must be regarded as susceptible of cure. In fact, personal experience shows that this occurs in the large majority of cases. Failures only occur with great rarity and cannot be discussed here.

The only questions that arise are these :

(1) How soon after recovery from a psychoneurosis shall the patient be sent back to active service ?

(2) Should he be given a week's leave of absence or leave for convalescence ?

It is not such an easy matter as it may appear at first sight to decide on the right time to send the cured patient back to service. Too often, indeed, as Grasset very rightly points out, a patient is rapidly "cured" and then sent straight back to his unit. As soon as he gets back to the trenches, his symptoms reappear and again necessitate evacuation. We ourselves made this mistake before we realized the situation. And even to-day, we often receive cases sent on from neurological centres of neighbouring army units, in whom consolidation of the cure does not seem to have been properly effected.

A seven days' convalescent leave for every patient who has been ten days in a hospital is an army regulation, and, in spite of the resolutions passed by the Congress of Neurologists at Doullens in January 1916, the refusal of this leave is, in certain army groups, considered as a disciplinary measure which necessitates the exchange of various documents and reports. This is a great mistake, and it is to be hoped that greater latitude will be allowed to the heads of the army neurological centres. It is desirable that this leave should only be granted for special reasons to patients who have shown goodwill and intentions during the course of treatment. Too often one is biassed by a very natural sentiment and led to consent, only to have to regret the decision later. We can quote two recent instances of this : a hysterical patient, after having been under our care for six weeks without a nervous crisis—though he had had them daily for several months previous to this—was given leave to go to Corsica and had an attack on the boat ; another patient, distinguished with the Legion of Honour, having been cured in a few moments of deaf-mutism due to shock, failed to rejoin his unit on the expiration of his leave of absence.

With regard to *prolonged convalescent leave of absence*, we think *a fortiori* that it should only be granted in exceptional cases in the army zone. A

hysterical patient derives no benefit from a long stay at home amongst his friends.

Lastly, cases of psychoneurosis should not, as often takes place, be transferred to centres in the interior except under exceptional circumstances. We need not again dwell on the necessity of exercising the greatest care in sorting out this class of patient with accuracy in the casualty clearing-stations and sorting-stations. It goes without saying that purely military reasons may suddenly necessitate the evacuation *en bloc* of a hospital containing neuropathic patients under treatment.

In the case of patients in whom the psychical element predominates—neurasthenic conditions, traumatic neurosis, confusional states, sequelæ of shock, etc.—the decisions that must be made are different. A minority of these patients recover quickly and can be treated at the rear, but here again a too early return to the front is often followed by relapse. The majority need, as we have already seen, transference to centres in the interior, as they require a prolonged period of rest and convalescent leave.

NEUROLOGICAL CENTRES OF THE INTERIOR.—In these branches of the medical service, the problems that arise are more numerous and more complex; the special class of psychoneuroses with long-standing symptoms, the large number of cases that have to be dealt with, and the depletion of the medical and nursing staff all go to render the conditions less favourable for psychotherapy.

As regards the cured cases of psychoneurosis of the hysterical type, we can make the same reservations as to return to service or convalescent leave.

What should be done with uncured patients, obstinate and chronic cases of hysteria? This is the question that so often faces the heads of the neurological centres and of which the Under-Secre-

tary of State for the Medical Services has recently suggested a solution.

As Grasset has put it, "They are patients who cannot be sent back to the dépôt (because there is no one to look after them) and who cannot be sent home to recover their health (because they are not convalescents and return from home in a worse condition than before); they cannot be discharged, because on October 21st, 1915, the Neurological Society decided that '*at the present time, under no circumstances whatever, must any soldier suffering from a psychoneurosis be brought before a medical board for any question of discharge,*' and since, on November 6th, 1915, the Under-Secretary of State for the Medical Services wrote to the President of the Society to intimate his approval of this decision."

What, then, is to be done with such cases, the number of whom is increasing daily and who constitute both a danger of contagion and a bad example to their fellow-patients? At the last meeting of the administrators of the neuro-psychiatric centres, held at Val-de-Grâce under the presidency of the Under-Secretary of State, the following measure was proposed and adopted:—Old and obstinate cases of hysteria are to be transferred in small batches, under arrangements made by the department, to the neurological centres in the army zone, some of which will be organized in view of this special treatment. We are in entire agreement with this decision, which, to judge from our personal experience, will certainly lead to a diminution in the number of these "undesirables" and the restoration of a large number of them to the army.

CASES OF PSYCHONEUROSIS AND THE DISCHARGE BOARDS.—In spite of the resolutions passed by the Neurological Society in 1915 with regard to the discharge of uncured cases of hysteria, there are many different medico-military standards applied to the psychoneuroses in the various districts. Far

too common are the patients of this class that have been, and still are, granted temporary discharge, with or without pay, as a sort of last resource. This is an extremely bad example to other patients under treatment and compromises the results. The Paris Neurological Society therefore devoted its meeting of December 15th last to the question of the Neuroses and Psychoneuroses of War and the Methods of Dealing with Them.

The following suggestions were proposed by Babinski and adopted :

(1) For purely hysterical or pithiatic affections—neither discharge nor pension.

(2) For pithiatic affections associated with organic or physiopathic disorders—no account is to be taken of the hysterical manifestations in estimating the degree of incapacity.

(3) For the physiopathic disorders ("reflex" nervous disorders) following trauma in the war and uncured after prolonged treatment—auxiliary service or temporary discharge with a pension of 20-50 per cent.

(4) For characteristic neurasthenic conditions, not accompanied by organic disorders or mental symptoms—no pay, very exceptionally discharge, generally auxiliary service.

In conclusion, may we raise a last question—that of the interpretation by the discharge-boards of the decisions arrived at by the doctors, particularly the specialists. In spite of the many and frequent protests that have been raised by the medical administrators of general and specialized departments alike, the contest still goes on. The discharge-boards persist in taking the least possible notice of the decisions of the medical officers, who have often taken a long enough time in making quite certain of an accurate diagnosis.

We cannot do better than quote the words of Grasset's report, which every medical man who is

conscious of his responsibility will certainly approve :

“ The following is the actual text of order No. 309, Ci 7 C.C.M., Nov. 5th, 1916, on the powers and province of general physicians and *specialists* in the making-up of medico-legal reports : ‘ The duty of general physicians and particularly of *specialists*, in making up their reports, is to furnish the most complete anatomical and clinical information in order to allow the only legal authorities—the expert medical advisers to the boards—to *express an opinion* or to arrive at decisions as to the legitimate course to be adopted with regard to the case in question. The physician should therefore *abstain from making any personal estimate as to the degree of incapacity or any suggestion as to a definite decision to influence the board*, save in exceptional cases, when in certain circumstances the board or its expert medical advisers may request their advice as consultants and in cases where the physicians are called for a second opinion by government order . . . ’

“ This complete suppression of all element of specialism is based solely on the objection that the patient knows the suggestion or decision of the competent specialists ; the same regulation discovers an easy remedy for this, by demanding, in the exceptional circumstances referred to above, that the information be forwarded in a sealed package.”

The Discharge Boards, we are informed, have supreme jurisdiction in the matter. But regulations are not unalterable, and it is not very revolutionary, in view of present events, which have upset all the old order of things, to urge the repeal of obsolete measures, which may have been adequate in time of peace but which no longer correspond to the needs of the times through which we are now passing.

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